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ABSTRACT

The National Child Care Staffing Study (NCCSS) was designed to explore how child care teaching staff and their working conditions affect the caliber of center-based child care. Four major policy questions were addressed: (1) Who teaches in America's child care centers? (2) What do they contribute to the quality of care provided? (3) Do centers that meet or fail to meet nationally established quality guidelines, that operate under different financial and legal auspices, and that serve families from different socioeconomic backgrounds also differ in the quality of care offered to children or the work environments offered to their staff? (4) How have center-based child care services changed from 1977 to 1988? Participants were 227 child care centers in 5 metropolitan areas: Atlanta (Georgia), Boston (Massachusetts), Detroit (Michigan), Phoenix (Arizona), and Seattle (Washington). Classroom observation and interviews with center directors and staff provided data on center characteristics and program quality, and on staff qualifications, commitment, and compensation. In Atlanta, child assessments were also conducted to examine the effects on children of such center and staff attributes as program quality and staff training. Part I of this report describes the purpose, goals, and design of the NCCSS. The six chapters of Part II concern child care teachers and the quality of care in America. Part III describes variations across centers. Part IV presents recommendations and a conclusion. Related materials, including 55 references and a glossary, are appended. (RH)

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The National
Child Care
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WHO CARES?
Child Care Teachers
and the Quality of
Care in America

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Child Care Teachers
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**WHO CARES?
CHILD CARE TEACHERS AND
THE QUALITY OF CARE IN AMERICA**

**FINAL REPORT
NATIONAL CHILD CARE STAFFING STUDY**

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**PART I: THE NATIONAL CHILD CARE
STAFFING STUDY**

INTRODUCTION

As the twentieth century draws to a close, public debate about child care in America has shifted. No longer is the question, "Should resources be allocated to these services?" Rather, discussion now focuses on what form support for child care will take. To date, pressures to expand the supply yet contain the cost to parents have shaped our public policies about child care. Short-term financial considerations have consistently shortchanged efforts to improve the quality of care children receive. Nevertheless, the supply of child care remains precarious and the fees for services lie beyond the means of many families.

Inattention to quality has had its costs: child care centers throughout the country report difficulty in recruiting and retaining adequately trained staff. Nearly half of all child care teachers leave their jobs each year, many to seek better-paying jobs. As the nation deliberates on what is best for its children, the question of who will care for them grows increasingly critical.

A commitment to pay for quality requires an understanding of the ingredients demanded by quality. It is widely accepted that a developmentally appropriate environment--one with well-trained and consistent staff in sufficient numbers, moderately-sized groupings of children, and proper equipment and activities--will lead to good care. Yet today's child care staff are leaving their jobs at a rate almost three times higher than a decade ago. This high rate of turnover forces us to examine child care as a work environment for adults and not just as a learning environment for children. In all work environments--from factories to hospitals--working conditions affect the quality of products produced or services provided. In child care, children's experience is directly linked to the well-being of their care givers. Good quality care requires an environment that values adults as well as children.

As a nation, we are reluctant to acknowledge child care settings as a work environment for adults, let alone commit resources to improving them. Even though many Americans recognize that child care teachers are underpaid (Harris & Associates, Inc., 1989), outdated attitudes about women's work and the family obscure our view of teachers' economic needs and the demands of their work. If a job in child care is seen as an extension of women's familial role of rearing children, professional preparation, and adequate compensation seem unnecessary. Attributing child care skills to women's biological proclivities implies that teachers' jobs are more an avocation than an economic necessity. While such

assumptions contradict the economic and educational realities facing those who teach in child care centers, they provide an unspoken rationale for depressing child care wages and containing costs.

Faced with a burgeoning demand for services, a pool of consumers with limited ability or inclination to pay the full cost of care, and restricted government and corporate funds, our nation has implicitly adopted a child care policy that relies upon unseen subsidies provided by child care teachers through their low wages. But as we are painfully realizing, this policy forms a shaky foundation upon which to build a structure to house and nurture our children while their parents earn a living.

CHAPTER 1: PURPOSE AND GOALS

The National Child Care Staffing Study (NCCSS) was designed to explore how child care teaching staff and their working conditions affect the caliber of center-based child care available in the United States today. The NCCSS addresses four major policy questions:

- * Who teaches in America's child care centers?
- * What do they contribute to the quality of care provided?
- * Do centers that meet or fail to meet nationally established quality guidelines, that operate under different financial and legal auspices, and that serve families from different socioeconomic backgrounds also differ in the quality of care offered to children or the work environments offered to their staff?
- * How have center-based child care services changed from 1977 to 1988?

Until now, there has been limited information available to inform important policy debates about child care. The questions addressed by the Study reflect gaps in the available child care literature. In the following section, we elaborate on each of the Study's major goals.

Goal #1: To update available information on the characteristics, qualifications, and job satisfaction of center-based child care teaching staff

The center-based child care work force is large, rapidly expanding, and economically significant given the vast numbers of employers who depend on working parents. Yet, before the NCCSS, we lacked even some of the most basic facts about who currently works in child care centers.

According to the National Day Care Study (Coelen, Glantz, and Calore, 1978), there were 200,000 center-based child care workers in the United States in the mid-seventies. In 1984, the Department of Labor (U.S. Department of Labor, [USDL], 1985) reported 677,000 child care workers (excluding those working in private households, like family day-care givers, nannies, and other private providers). Assuming these numbers are comparable, they indicate that the number of non-household child care workers has at least tripled in the last decade. The child care work force remains predominantly female. Women comprise 95 to 99 percent of the work force compared with 44 percent of the total labor force (USDL, 1985). In 1977, center-based providers had an average of 14 to 15 years of formal education.

Close to 30 percent had 16 or more years of education--twice that of all employed females in the United States at the time (Coelen et al. 1978). Anecdotal evidence, however, suggests that there has been a general decline in the 1980's in both the level and appropriateness of the training received by center-based providers.

Existing demographic data on child care workers are seriously flawed and outdated. The federal databases use outmoded definitions of the child care work force, rely heavily on self-reported information, and fail, for example, to tabulate data to permit an examination of wages for workers with different levels of education or varying years of experience (see Phillips & Whitebook, 1986). The over 10 year-old National Day Care Study--the only other source of national data on the work force--was conducted when the supply of child care centers was a fraction of today's. Providing up-to-date, more substantial and descriptive information on the current center-based child care work force was one of the NCCSS goals.

Goal #2: To examine the contribution of the teaching staff to the quality of care provided for children and families in center-based arrangements

This is not a new area for child care researchers. Past empirical literature has established strong links between teacher characteristics and the quality of teacher-child interactions in child care (see Phillips & Howes, 1987, for a review of this literature). Specialized early childhood education and formal education in general are consistently better predictors of positive and appropriate teacher-child interaction than is field experience (Arnett, in press; Berk, 1985; Clarke-Stewart & Gruber, 1984; Howes, 1983; Ruopp, Travers, Glantz, and Coelen, 1979). The NCCSS expected to replicate these findings.

The NCCSS is unique in that it examines what factors enable trained and educated teachers to provide the positive interactions that promote positive child development and remain in the child care field. This leads us to the adult work environment which includes wages, benefits, and working conditions like paid breaks and curriculum preparation time, job satisfaction, and the allotment of center resources to personnel. We asked whether teachers in child care centers with better work environments (particularly better compensation and working conditions) are better teachers.

This question has two parts. First, do teachers with better compensation and working conditions express higher job satisfaction and commitment? On the one hand, the National Day Care Study

National Child Care Staffing Study

(Coelen et al. 1978), U.S. Department of Labor information, and small-scale community surveys of child care workers (e.g., Whitebook, Howes, Friedman, and Darrah, 1982) suggest that the salaries of center-based child care workers are dismally low, that few receive benefits, and that staff turnover rates are astonishingly high. Anecdotal evidence also suggests that low morale, stress, and job burnout are common and fuel staff turnover (Hyson, 1982, Jorde, 1982; Kontos & Stremmel, 1987; Whitebook et al. 1982). On the other hand, the same literature suggests that these teachers find the day-to-day challenges of their work highly satisfying. This mixed picture raises concerns about the factors that predict job satisfaction and commitment in the child care field.

Even less is known about the second part of the question: does the adult work environment in child care affect job performance as measured by the quality of the staff's interactions with children? Both research and common sense tell us that people who are more satisfied with their jobs are more productive and committed workers. But we do not know if this is true for child care teachers. Only one prior study examined links between child care teacher job satisfaction and teaching behavior. Berk (1985) found that teachers who reported being more satisfied with their jobs more often used age-appropriate instruction and encouraged children's efforts and verbal skill development. Teachers who reported low levels of satisfaction were more likely to disparage children and set overly restrictive limitations on their activities. However, this Study did not consider the effect of the adult work environment on job satisfaction.

To examine links between the adult work environment and the quality of care given to children, we first defined 'quality of care.' Two distinct but interrelated aspects of quality were measured: (1) the child development environment, defined in terms of the curriculum, activities, and materials provided to children and the regulated features of ratio and group size, and (2) the observed teacher-child interactions, particularly the sensitivity, harshness, and detachment of the teachers.

Each of these two aspects of quality has a rich research literature detailing the effects on children of better and worse child care environments and child-adult interactions. The NCCSS extends this literature by examining links between these aspects, as well as their relations with the adult work environment.

Many research studies suggest that children's development, when they are in a center and for several years afterwards, is influenced by the quality of the center (Anderson, Nagle, Roberts, and Smith, 1981;

1: Purpose and Goals

Clarke-Stewart & Gruber, 1984; Howes, 1988a; Howes, in press; Howes & Olenick, 1986; Lamb, Hwang, Broberg, and Bookstein, 1988; McCartney, 1984; Phillips, McCartney, and Scarr, 1987; Ruopp et al. 1979; Vandell & Powers, 1983; Vandell, Henderson, and Wilson, 1988). Much of this previous research linked the child development environment of child care centers directly to children's behavior (e.g., Howes & Rubenstein, 1985). For example, children cared for in smaller groups have been found to behave differently than children cared for in larger groups.

This type of reasoning leaves out the teacher. We know from basic child development research and theory that children's experiences in child care are mediated by their social interactions with adults (e.g., Schaffer, 1984). Therefore, we expected to find a chain of influence leading from the child development environment to teacher-child interaction, which, in turn, was expected to predict children's development. A large body of research documents positive relations between child development environments and teacher-child interactions in child care. Teachers responsible for smaller numbers of children and in centers where the physical environment and materials are appropriate for children are more likely to respond sensitively and appropriately to the children in their care (Bruner, 1980; Clarke-Stewart & Gruber, 1984; Cummings & Beagles-Ross, 1983; Howes, 1983; Howes & Rubenstein, 1985; Ruopp et al. 1979; Smith & Connolly, 1981).

In the late 1980's, this research must be placed in a new and disturbing context. The child care staffing crisis documented by national databases (USDL data as cited in Phillips & Whitebook, in press), local surveys (Child Care Employee Project, 1989), and ample anecdotal information (Daniels, 1989) has raised additional questions about the influence of teaching staff on children's development. The U.S. Department of Labor estimates that between 1980 and 1990, 42 percent of all child care teachers will need to be replaced each year just to maintain the current supply of teachers (Phillips & Whitebook, in press). It is possible that children experiencing the very best child development environments and the very best of teacher-child interaction will still experience high turnover of their teachers.

When juxtaposed with evidence that stability is an important ingredient of quality care for young children, the high turnover rates cause concern. Specifically, multiple changes in child care arrangements during children's early years appear to cause detrimental short- and long-term developmental effects (Howes, 1988a; Howes & Stewart, 1987). The children in these studies actually experienced changes in their child care arrangements, for example, going from one center to another. The NCCSS adds to

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these studies data on children who remain in the same center but who experience high or low teacher turnover rates.

While the U.S. Department of Labor and others have documented the high rate of staff turnover in child care, no information is available on which staff are leaving the field and the characteristics of their replacements. Are more qualified staff leaving for better job opportunities or are less qualified and perhaps less committed staff leaving? Are replacement child care workers as well prepared as their predecessors to work with young children? Preliminary evidence suggests that centers are having trouble replacing their outgoing staff with well-trained teachers (Hartmann & Pearce, 1989). In other words, the effects of turnover may be compounded by a deterioration in the quality of the teaching staff. This trend, if confirmed, bodes negatively for children if viewed in light of the research literature documenting the relations between well-trained staff and beneficial child-adult interactions. Assessing whether children are receiving less appropriate caregiving because of staff turnover was a NCCSS goal.

Goal #3: To examine differences in the quality of care offered to children and the work environments offered to staff among centers that meet or fail to meet nationally-established standards of quality; that operate under different financial and legal auspices; and that serve families from different socioeconomic backgrounds

We designed our investigation of center-based care to assess: (1) how child care standards affect the quality of care, (2) the pros and cons of various center types, and (3) variations in the services available to children with different family incomes. Currently, there are no federal regulations with which centers are required to comply and state regulations vary dramatically. In 1980, the federal government adopted, and almost immediately rescinded, the Federal Interagency Day Care Requirements (FIDCR). Among an array of provisions, the FIDCR addressed three core ingredients of quality related to positive child outcomes in the research literature (Ruopp et al. 1979): the ratio of children per adult care giver, the group size in classrooms, and the child-related training of the teaching staff (U.S. Department of Health, Education, and Welfare, 1980). In 1984, the National Association for the Education of Young Children (NAEYC) initiated its Center Accreditation Project (NAEYC, 1984). NAEYC is the largest early childhood education professional association in the United States. Its Center Accreditation Project is a voluntary, nationwide accreditation program for all early

childhood center-based programs. After a thorough self study and external review, centers that meet certain standards of care receive accredited status. The FIDCR and NAEYC Accreditation Guidelines represent the most widely respected expert judgment about quality in child care settings. In the absence of mandatory regulations, they provide the best voluntary standards by which to explore the relation between quality and regulation. We compared the quality of care and the adult work environments of accredited centers with non-accredited centers, as well as compared centers meeting the FIDCR provisions for ratios, group size, and staff training with those meeting only some or none of the provisions.

As well as varying in voluntary compliance to standards, centers can and do vary in their financial and legal ownership or auspice. To examine how auspice affects the quality of both the child development and adult work environments in child care, we compared child care centers operating under four different auspices. Two auspices are non-profit: (1) non-profit, non-church-run centers; and (2) church-sponsored centers, including synagogues. Two are for-profit: (3) chains, centers that are one of several operated by a single owner on a local, regional, or national basis; and (4) independent, for-profit centers that are one of a kind, operated by a single owner.

While parents are responsible for selecting child care, we know their choices are constrained by finances. We compared child care quality, teaching staff, and the adult work environments of centers serving families with high-, middle-, and low-socioeconomic backgrounds in order to better understand which centers serve whom and how their quality varies.

Goal #4: To compare 1977 and 1988 center-based child care services

The last national study of center-based child care is more than a decade old. Data from the Supply Study of the National Day Care Study (Coelen et al. 1978) and the Cost Effects Study of the National Day Care Study (Ruopp et al. 1979) were collected in 1977. In the intervening years, the number of licensed child care centers in the United States has grown by at least 77 percent (NAEYC, 1985). In order to identify trends in center-based care over this period, we compared NCCSS findings with those of these two National Day Care Study components.

The complexity and diversity of America's child care delivery system presents a challenge to researchers. Either they can study the entire scope of services and the emerging myriad of policy

National Child Care Staffing Study

questions in a general way or they can limit their investigation to a certain segment of the field and delve more deeply into it. We chose the latter approach for the National Child Care Staffing Study and focused only on center-based care. We did not study family day care or in-home relative or non-relative care. Our investigation of center-based programs concentrated on those that served children up through five years of age (infants, toddlers, and preschoolers). To be included in our sample, centers were required to operate at least 11 months a year for a minimum of six hours a day, serve a minimum of 15 children, and employ no less than six staff members. These requirements excluded part-day public school, nursery school and Head Start programs from our sample. We also excluded centers with populations of more than 50 percent special needs children because of these programs' variations in staffing needs and services.

We also restricted what policy questions we explored. The Study does not survey the supply of child care available to families nor does it address specific consumer or economic issues such as the match between family income and child care fees. Similarly, it does not provide a cost analysis of variation in center quality. And it does not compare families who use child care services with those who do not. Rather, to assess the quality of services available to those American families depending on center-based care, the National Child Care Staffing Study draws a portrait of today's child care teachers and sketches the regulatory, organizational, and economic landscape in which they work.

CHAPTER 2: STUDY DESIGN

Overview and Conceptual Framework

The National Child Care Staffing Study examined the quality of care in 227 child care centers in five metropolitan areas: Atlanta, Boston, Detroit, Phoenix, and Seattle.¹ Data collection took place between February and August, 1988. Classroom observations and interviews with center directors and staff provided data on center characteristics and program quality, and on staff qualifications, commitment, and compensation. In Atlanta, child assessments were also conducted to examine the effects on children of such center and staff attributes as program quality and staff training.

The conceptual framework of the National Child Care Staffing Study consists of a set of general assumptions about relationships among different components of center-based child care, illustrated in *Figure 1* on the following page.

Specifically, we hypothesized that:

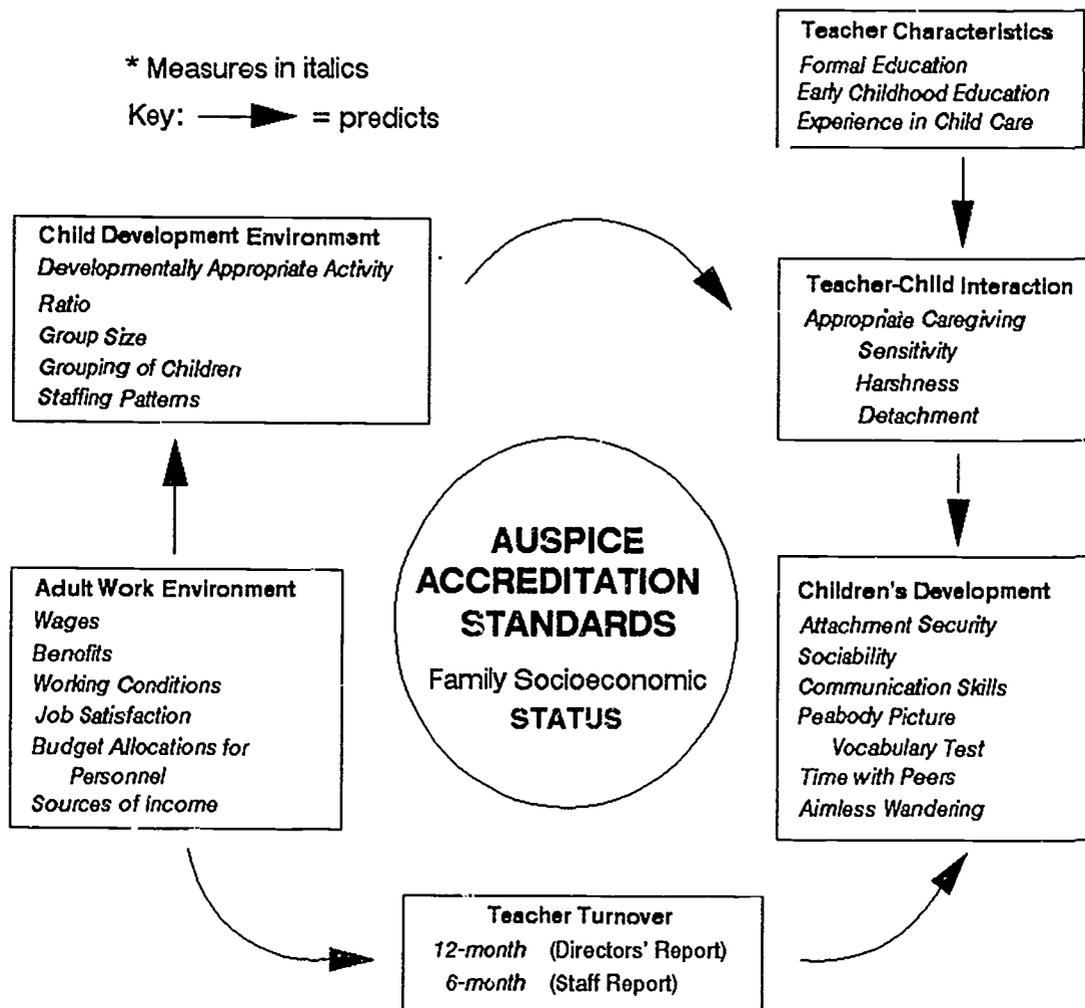
1. The teacher characteristics (e.g., experience, formal education, and child-related training) and the quality of the child development environment (e.g., developmentally appropriate activity, the ratio of children per adult care giver, and the group size in classrooms) influence teacher-child interaction.
2. The adult work environment in child care centers, particularly staff compensation and working conditions, affects the teaching staffs' job satisfaction and commitment as reflected in staff turnover rates.
3. Both the quality of teacher-child interaction and staff turnover affect children's development in child care.
4. Characteristics of centers and their teaching staff vary by center auspice (e.g., for-profit, non-profit), compliance with the FIDCR's ratios, group size, and staff training provisions, and NAEYC accreditation.
5. Families from one socioeconomic group use centers that differ significantly in each of the dimensions of care illustrated in *Figure 1* from centers used by families from another socioeconomic group.

¹Quality ratings for centers in each site of the Study are included in the five National Child Care Staffing Study site reports. (Atlanta Report, Boston Report, Detroit Report, Phoenix Report, Seattle Report. NCCSS. CCEP, 1989.)

National Child Care Staffing Study

6. Over the past decade, the working conditions have deteriorated and turnover rates have risen for center-based teaching staff.

Figure 1: Guide to the National Child Care Staffing Study



The following analysis plan was used to test the model. Within each area (e.g., Teacher Characteristics, Turnover), we used analyses of variance to compare centers with different auspices, coincidence with FIDCR provisions, accreditation, and family income. We used multiple regression techniques to test relations indicated by arrows on the diagram. All findings reported in the text are statistically significant; at $p < .05$, they could have arisen by chance alone one time in twenty.

The NCCSS Sample

The goals of the NCCSS guided the criteria for selecting centers to observe. The sample was selected to:

1. Represent the range in center auspices and quality characterizing each of the five Study sites.
2. Ensure that centers serving all socioeconomic groups in both urban and suburban metropolitan areas were included.
3. Permit comparisons with the findings of the National Day Care Study (Coelen et al. 1978; Ruopp et al. 1979).

Due largely to the vast expense of conducting a stratified, national sample of such programs, our sample was not intended to be a representative sample of all child care centers. Rather, we sought to capture the diversity of the nation's centers in numbers approximating their distribution in the five Study sites.

In the next section, the criteria used to define the Study sample and the process by which sites and centers were selected are described.

Selection and Description of Sites

The five Study sites--Atlanta, Boston, Detroit, Phoenix, and Seattle--were chosen to vary as much as possible along the following dimensions: (1) the level of quality (low to high) required by each state's child care regulations, (2) geographic region, (3) relative distributions of for-profit and non-profit child care centers, and (4) the attention accorded child care staffing issues in state and local policy initiatives. Our interest in tracking trends in center-based child care since the National Day Care Study was conducted in 1977 also influenced our selection of sites. To compare the quality of center-based care in 1977 and in 1988, we selected the three sites that participated in the Cost Effects Study of the National Day Care Study (Ruopp et al. 1979)--Atlanta, Detroit, and Seattle. Given that the National Day Care Study selected sites to assure regulatory and geographic diversity, inclusion of these three sites also met our general criteria for site selection. Trends were also tracked using the Supply Study of the National Day Care Study (Coelen et al. 1978) in which telephone interviews were conducted with a nationally representative sample of child care centers serving federally-subsidized children.

Boston and Phoenix were included to reflect more contemporary trends in the child care field.

National Child Care Staffing Study

While both sites have experienced rapid economic growth in the last 10 years, each has adopted a very different approach to center-based child care. Massachusetts enacted stringent regulations and has paid considerable policy attention to child care wage issues. For example, salary enhancement legislation was enacted in the mid-1980's. Arizona, in contrast, enacted minimal standards and has not addressed child care staffing issues at any level of policy-making. Moreover, Phoenix has had a substantial growth in for-profit centers, while Boston has had a very slow growth. Consequently the two sites have markedly different distributions of for-profit and non-profit centers.

The participating sites, as planned, are highly diverse with respect to their economic contexts, demographics, and regulatory climates. The cost-of-living in each of the five sites was above the national average in 1988, with a range of 50% above in Boston to 8% above in Seattle. The unemployment rates also ranged widely from 8% in the Detroit metropolitan area (11% in the city of Detroit) to 2.8% in the Boston metropolitan area. The population in Phoenix grew by 30% between 1980 and 1987, leading the U.S. Department of Commerce to project that it will be the country's second-fastest growing metropolitan area through the year 2000. In contrast, Detroit's population fell by 3% between 1980 and 1987, following a decline in the auto industry.

Each Study site had an ethnically diverse population but the actual size and composition of each varied greatly. For example, Atlanta's 27% minority population is almost entirely black whereas Phoenix's 20% minority population is largely Hispanic. In Detroit, 21% of the population is black with other minorities accounting for an additional two percent. Seattle and Boston have smaller minority populations--13% and 10%, respectively--with Asians and Native Americans constituting the largest share in Seattle.

The sites also represent policy and regulatory diversity. At one end of the spectrum, Massachusetts has among the most stringent child care regulations in the nation, and state funding for child care is higher than in most states relative to the population. (*Table 1* presents the state child care regulations for adult-child ratios and group size that applied to child care centers in each of the Study sites in 1988. *Table 2* represents the state child care regulations for staff training.)

Table 1
State Child Care Regulations for Ratios and Group Size

	<u>Ratios</u>			<u>Group Size</u>		
	<u>Infant</u>	<u>Toddler</u>	<u>Preschool</u>	<u>Infant</u>	<u>Toddler</u>	<u>Preschool</u>
Arizona	1:5	1:6 1:8	1:15 1:20	NR	NR	NR
Georgia	1:7	1:10	1:15 1:18	NR	NR	NR
Massachusetts	2:7	1:4	1:10	7	9	20
Michigan	1:4	1:4	1:10 1:12	NR	NR	NR
Washington	1:4	1:7	1:10	8	14	20

Note: NR indicates not regulated. Infant refers to children 1 year and younger (or not walking); toddler refers to 1 and 2 year-olds; preschooler refers to 3 and 4 year-olds. Where two ratios are listed in an age group, the first refers to the youngest age and the second refers to the oldest (e.g., 1:15 for 3 year-olds and 1:20 for 4 year-olds in Arizona).

Table 2
State Child Care Regulations for Staff Training

	<u>Pre-service</u>	<u>In-service^a</u>
Arizona	Early childhood education or experience	12 hours/year
Georgia	None	Unspecified number of hours every three years
Massachusetts	Early childhood education and experience	20 hours/year
Michigan	None	None
Washington	None	Unspecified hours/year

^aContent of training is not specified in any state.

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According to the Children's Defense Fund, Massachusetts increased its expenditures for child care by over \$10 million in 1988, bringing total expenditures to \$146 million. Funds were allocated to assist low-income parents with child care fees, to expand training opportunities for providers, and to increase child care worker salaries. From 1985 to 1988, staff salaries in programs receiving state contracts were raised by as much as 49 percent. At the other end of the spectrum, Georgia has among the least stringent regulations and, in 1988, relaxed its standards by exempting programs which operate on public school property from coverage. Moreover, funding for child care in Georgia has decreased in the last decade. Michigan has quite stringent ratio requirements among otherwise lax regulations. Also, more children in Michigan received public child care services in 1988 than in 1987 due to a \$3.6 million increase in state funding. In the 1980's, Arizona faced a burgeoning demand for child care services amidst a lax regulatory climate; since 1981, public funding for child care has failed to keep pace with inflation; fewer children were served in fiscal year 1988 than in 1987. Washington improved its infant ratio requirements in 1988 from 1:5 to 1:4. In the same year, \$3 million was added to the state's child care budget to support provider training and provide subsidies to parents.

Selection of Centers in the NCCSS Sites

A two-part strategy was used in each Study site to generate a sample of child care centers serving low-, middle-, and high-income families in urban and suburban neighborhoods. First, the eligible pool of centers was identified from updated lists of licensed child care centers. Eligible centers provided non-residential care for a minimum of six hours a day for at least eleven months per year, enrolled a minimum of 15 children, employed a minimum of six teaching staff members, and had been in operation for at least nine months.

The final sample of participating centers was selected from this eligible pool using a stratified, random sampling strategy. Specifically, the eligible pool of centers in each site was divided into six groups based on their location in (1) low-, middle-, or high-income U.S. Census tracts (using site-specific median incomes to establish income cut-offs), and (2) urban or suburban neighborhoods. The final sample of centers was then randomly selected to match the proportion of eligible centers in each of these six income and density groups. Replacement sampling was used to handle refusals. As a result, if 30% of a site's eligible centers were located in low-income, urban neighborhoods, 30% of the site's

final sample consisted of centers in low-income, urban neighborhoods. *Table 3* presents the number and percentage of centers that fell into each of the six income and density groups. *Table 4* identifies the total number and share of centers eligible to participate in each of the income and density groups. The highly comparable percentages in the two tables indicates the success with which the replacement sampling strategy was implemented.

Table 3
Final Sample of Participating Centers (N = 227)

	<u>Low-income</u>	<u>Middle-income</u>	<u>High-income</u>
Urban	35 (15.4%)	64 (28.2%)	10 (4.4%)
Suburban	4 (1.8%)	96 (42.3%)	18 (7.9%)

Table 4
Distribution of Eligible Centers (N = 2054)

	<u>Low-income</u>	<u>Middle-income</u>	<u>High-income</u>
Urban	253 (12.3%)	546 (26.6%)	75 (3.7%)
Suburban	66 (3.2%)	940 (45.7%)	174 (8.5%)

Representativeness of the Sample

Did our center sample represent the range of quality and center auspices that exist nationwide? Because centers were not sampled randomly from the national population of day care centers, the results could not be expected to proportionally represent all of the different types and qualities of centers across the nation. However, adequately addressing the Study's primary issues required sufficient representation of centers varying in population served, residential location, auspice, and quality.

Of all eligible centers asked to participate in the Study, sixty-one percent agreed. Refusal rates were higher among centers in middle-income (42% refused) and high-income (38% refused) Census tracts than among those in low-income tracts (23% refused). No differences in participation rates characterized urban and suburban centers.

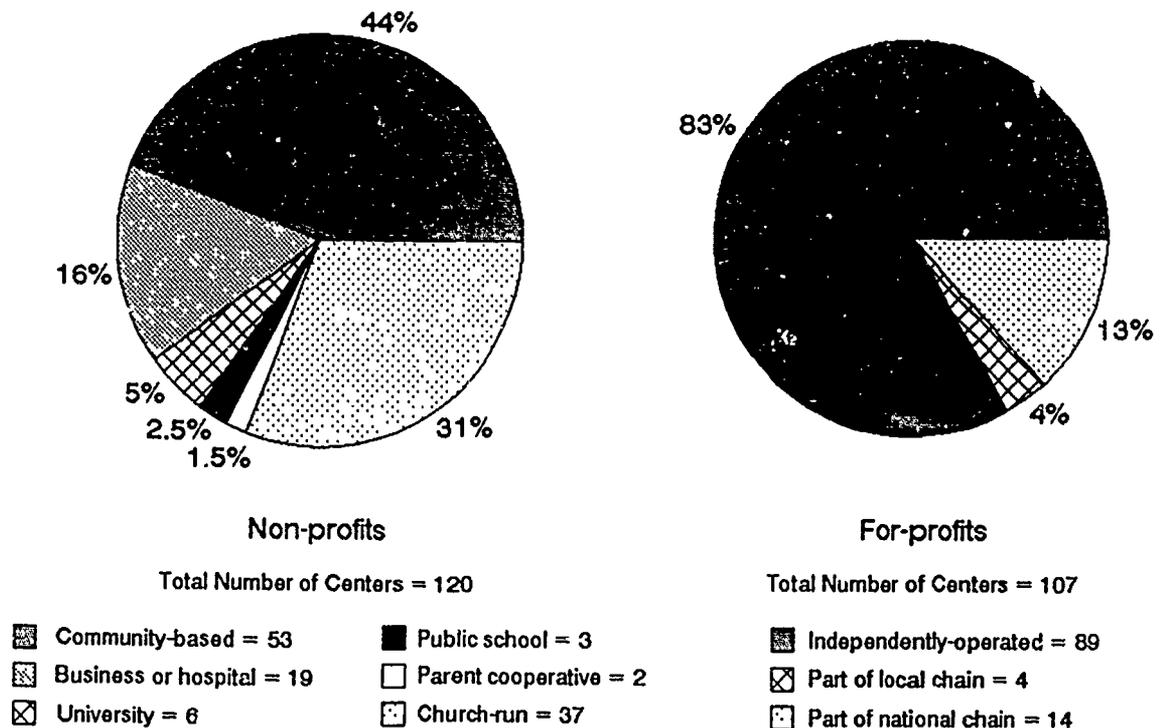
The NCCSS sample was also examined for its distribution of non-profit and for-profit centers. Eighty-three centers (37%) were non-profit, non-church; 37 (16%) were sponsored by religious

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organizations and referred to as church-sponsored, non-profit; 89 (39%) were independent, for-profit, and 18 (8%) were for-profit operating as part of national and local chains. Of the chains, fourteen (14) were national and four (4) were local. Not all national and local chains were represented in the sample. A recent non-empirical estimate, based on experts' impressions (Neugebauer, 1989), suggests that independent, for-profit centers constitute 46% of all licensed centers with for-profit chains accounting for an additional 7 percent. The NCCSS distribution does not differ greatly from these estimates. Our non-profit centers consisted largely of independent and community-run centers (53) with some business or hospital-sponsored centers (19) but very few parent cooperatives (2), university-based (6) or school-run (3) centers. A center was more likely to participate if its legal status was non-profit (21% refused) rather than for-profit (39% of independent, for-profits and 42% of chains refused).

In regard to quality, telephone screening interviews with all center directors also revealed that those who participated reported higher (i.e., better) adult-child ratios in their centers than did the directors who refused to participate. This suggests that the final sample of 227 centers may, on average, consist of higher quality centers than in the eligible population as a whole.

Chart 1
Auspice of Sample Centers



In summary, there is some potential for bias in the sample given the higher participation rates for non-profit than for-profit centers, centers serving low-income families, and centers that may offer somewhat higher quality care than is typical in the Study sites. However, as a result of the stratified, replacement sampling strategy, the final sample of centers closely matches the distribution of centers across Census tracts and urban and suburban residential areas. As will be seen, the centers also offered an extremely wide range of quality of care.

Selection of Classrooms, Teaching Staff, and Children

In each center, three classrooms were randomly selected to be observed, one each from among all infant, toddler, and preschool classrooms. In centers that did not enroll infants, only two classrooms were observed. Where possible, mixed-age classrooms were also included to provide three classrooms per center. Across all participating centers, the research team observed 643 classrooms: 85 (13%) infant, 151 (23%) toddler, 313 (49%) preschool, and 94 (15%) mixed-age classrooms.

Chart 2
Classrooms Observed by Age of Children

N = 643 classrooms

Mixed ages	15%	94
Preschoolers (3 to 5 year-olds)	49%	313
Older toddlers (2 year-olds)	11%	73
Young toddlers (1 year-olds)	12%	78
Infants under 1 year	13%	85

Two staff members--one teacher or teacher director (referred to as *teachers* in this report) and one assistant or aide (referred to as *assistant teachers*)--from each participating classroom were randomly chosen to be interviewed and observed. Virtually every staff member who was asked to participate agreed to do so. Sixty-six percent (865) of the final sample of 1,309 teaching personnel were teachers (805 teachers and 60 teacher-directors) and 34% (444) were assistant teachers (286 assistant teachers and 158 aides).

In Atlanta, two children, preferably a girl and a boy, were randomly selected from each target classroom to be assessed. Two hundred and fifty-five children constituted the child sample: 92 infants, 57 toddlers, and 106 preschoolers.

Measures and Procedures

The complexity of the NCCSS investigation required a varied approach to collecting data. Data collection in each site was completed by a local NCCSS team consisting of two to seven research assistants and a site coordinator. On average, at least two team members spent three days in each center. The director interviews were completed prior to any other data collection. Classroom observations to assess quality of care were completed prior to teaching staff interviews. The observers were unaware of the information provided by the directors.

In most cases, the team was composed of people from the child care community with experience as teachers, directors, or child care resource and referral personnel. Every member of the research team was an experienced observer of child care and children through either extensive experience in the early childhood field or specialized research training. The entire research team was trained in interviewing and observational techniques at a four-day training session held in Berkeley, California prior to data collection. Inter-rater reliabilities were established to a criterion of 80% agreement for all observational measures prior to data collection. Cross-site inter-rater reliability was reestablished at the midpoint of data collection by having one research assistant from each site travel to two other sites and reestablish reliability. At mid-point, within-site reliabilities (based on 5% of the center sample) exceeded 90% and cross-site reliabilities were above 85% agreement.

Teacher Characteristics, Adult Work Environment, and Turnover

Director Interview

Interviews with each center director were conducted by the site coordinators. The interview, lasting an average of 3 hours, included information on the center's auspice, history, goals, and budget. The director was asked to specify the demographic characteristics, professional preparation, and compensation of each teaching and administrative staff member. The director was also asked to describe working conditions and benefits for each category of staff, and to provide detailed information on the staffing patterns within each classroom. Finally, the director provided information on the sex, ethnicity, family status (two- or single-parent), judged socioeconomic status (low, middle, high), and subsidization of each child in the center. Test-retest reliability (two interviews per director) for this interview was

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computed for 10 directors not participating in the Study. Test-retest reliability across all items was $r = .82$ (range = .79 to .94).

Teaching Staff Interviews

The six staff members from each of the observed classrooms were individually interviewed by research assistants unaware of the director's responses. This interview lasted from one to two hours. It consisted of seven sections: personal background, child care experience, wages and benefits, other career experience, educational background, professional satisfaction, and recommendations for improving the child care profession. Test-retest reliability (two interviews per staff) for this interview was computed for 10 child care teaching personnel not participating in the NCCSS. Test-retest reliability across all items was $r = .79$ (range = .71 to .92).

Comparability of Interviews

The directors and the staff were asked similar questions about wages, benefits, and working conditions. The directors systematically provided higher estimates for these variables than did the teaching staff. In this report, responses of the teaching staff are given when we have comparable material from directors and teaching staff. Director responses, where reported, are indicated as such. We used teaching staff reports because the primary goal of the NCCSS was to directly link teacher characteristics and perceptions of salaries and working conditions to the type of care given to children. We expected self-reports to be more reliable than director reports. In addition, teaching staff reports provided us with a larger number of cases to analyze than did director reports.

Job Satisfaction

The teaching staff were asked a series of questions about their job satisfaction. Two sets of questions inquired generally about why they chose to work in child care and why they chose to work in their particular center. Specific subscales were included to assess satisfaction with co-worker relations, supervisor relations, compensation, decision-making autonomy, amount of control over activities, and work demands. An additional scale contained six items to assess job commitment. These subscales were derived from the Early Childhood Work Attitudes Survey (Jorde-Bloom, 1986). The Minnesota

Satisfaction Questionnaire (Vocational Psychology Research, 1963), that taps a wide variety of job facets divided into intrinsic and extrinsic aspects of satisfaction (Berk, 1985), was also included.

The 102 items composing these job satisfaction measures were reduced to fourteen subscales based on a maximum likelihood factor analysis with oblique rotation. The solution accounted for 40.9% of the total variance. The items that compose each factor (using loadings $\geq .35$) and their factor loadings are listed in *Appendix D*. Most factors combined items from the specific subscales and at least one of the three general scales (why they chose to work in child care and the Minnesota Job Satisfaction Scale). The factors are: (1) supervisor relations, (2) co-worker relations, (3) working conditions, (4) fairness of salary, (5) decision-making autonomy, (6) variety/challenge, (7) commitment, (8) social status, (9) work demands/effort, (10) opportunities for advancement, (11) work-family, (12) democratic director, (13) salary/benefits, and (14) job security. Scores for each item ranged from a low of 1 to a high of 5.

Turnover

The NCCSS contains two estimates of child care teaching staff turnover. When interviewed, directors indicated the number of personnel who had left within the last 12 months. Additionally, the teachers indicated how likely they were to leave the center in the next year. Six months after the initial teacher interviews (August, 1988 to February, 1989), we reached 71% of the teachers interviewed again by phone to obtain data on actual turnover rates. There was only a modest correlation between actual (the number who left their jobs six months after their initial interview) and projected (those who said they planned to leave) turnover rates of the teaching staff ($r(862) = .43, p < .01$).

Quality of Care

Classroom quality was assessed and rated using observations of overall quality, classroom structure, and interactions between the teaching staff and the children. Research assistants spent a total of at least two hours in each classroom assessing quality. In most cases, each classroom was visited on more than one day; in all cases, the time a classroom was observed covered both morning and afternoon activities.

Overall quality was assessed with the Early Childhood Environment Rating Scale (ECERS) (Harms & Clifford, 1980) for each observed preschool classroom and the Infant-Toddler Environment Rating Scale (ITERS) (Harms & Clifford, 1986) for each of the observed infant and toddler classrooms. These

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scales comprehensively assess the day-to-day quality of care provided to children. Individual items are rated from a low of 1 to a high of 7. A rating of 3 on these scales indicates "minimally acceptable" quality while a 5 indicates "good" quality. The ECERS is widely used in child development research and has predicted optimal child outcomes in a number of studies (Phillips, 1987). The ITERS was derived from the ECERS and has been extensively field-tested in infant and toddler classrooms.

Directors completed a grid for each room in their centers specifying, in hourly blocks, the number and age of children cared for and the teaching staff in the room. From these grids, we derived measures of staffing patterns including the number of adults in the room, the degree of overlap between teaching shifts, and the use of "floaters," or teaching staff not assigned to a specific room. We also derived measures of child grouping including whether the room included single-age or mixed-age children, and whether children were grouped and regrouped among classrooms in an accordion fashion throughout the day.

Quality Factors

Two subscales were derived from a maximum likelihood factor analysis, with oblique rotation, of the ECERS and ITERS scale items.² The first subscale, appropriate caregiving, captured the items pertaining to child-adult interactions, supervision, and discipline. We used this scale as a measure of teacher-child interaction. It accounted for 52% of the variance in the preschool version of the scale and 56% of the variance in the infant/toddler version. The second subscale, titled developmentally appropriate activity, captured the items pertaining to the materials, schedule, and activities and was used as a measure of the classroom's child development environment. It accounted for 48% of the variance in the preschool version of the scale and 44% of the variance in the infant/toddler version. The specific items and their factor loadings are listed in *Appendix E*.

²This is the first time that the ECERS and ITERS have been subjected to a factor analysis. The scales have been criticized for their lack of dimensionality, specifically caregiving confounding with room arrangement. We had a sufficiently large sample to conduct a factor analysis which allowed us to separate different dimensions of the scale.

Child Development Environment:

In addition to the developmentally appropriate activity subscale, the child development environment was assessed with observations of classroom structure. Specifically, child-adult ratios, group size, number and job titles of adults, and ages of children were recorded at regular intervals during the two-hour observation period. The observations were averaged out to a final score for number of adults, title of adults, number of children and their ages, child-adult ratios, and group size. Hour-by-hour staffing patterns in every center classroom, including those that were observed, were obtained from the grids completed by the directors.

Adult Work Environment

In addition to the two quality subscales derived from the ECERS and ITERS, each scale included four items that compose a conceptually distinct subscale, adult needs. The items inquire about the availability of separate adult areas, including a meeting room, and about opportunities for professional development.

Teacher-Child Interaction

A second rating of teacher-child interaction--the Arnett scale of teacher sensitivity (Arnett, in press) --supplemented our measure of appropriate caregiving derived from the ECERS and ITERS. The Arnett scale differs from the appropriate caregiving measure by rating each teacher instead of the room. In previous work, the Arnett scale distinguished staff with different levels of training in early childhood education (Arnett, in press). Three scores accounting for 60.4% of the variance were derived from the staff sensitivity scale using a principal component analysis with varimax rotation. We labeled the subscales sensitivity (nine items including warm, attentive, engaged); harshness (nine items including critical, threatens children, and punitive); and detachment (four items including low levels of interaction, interest, and supervision). Scores on the sensitivity and harshness subscales range from a low of 4 to a high of 36; scores on the detachment subscale range from a low of 4 to a high of 16.

In Atlanta, one research assistant additionally observed each target child's interaction with his or her teaching staff for six five-minute blocks evenly distributed over a two-hour period. Interactions were rated every 20 seconds using the Howes and Stewart (1987) measure of the level of adult involvement

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with children. (The same research assistant did not complete the Arnett and Howes scales.) This five-point scale has predicted children's developmental outcomes (Howes & Stewart, 1987). Scale points range from routine caregiving (e.g., touching the child without any verbal interaction) to intense caregiving (e.g., engaging a child in conversation, playing with an infant while changing diapers). Kappa inter-observer reliability scores for the adult involvement measure were .92.

Children's Development

We assessed the socio-emotional, language, and cognitive development of all the children in the Atlanta sample. The actual measures used differed by age of child (see *Table 5* for a description of the assessments used at each age). Each child was observed for six five-minute blocks evenly distributed over a two-hour period. Interactions with peers were rated every 20 seconds using a revised version of the Peer Play Scale (Howes, 1980). Kappa inter-observer reliability for the scale was .88. The Peer Play Scale has acceptable stability over time and can be used as a marker of social competence with peers (Howes, 1988b). The revised scale measures complexity of social pretend play as well as social play.

Table 5

Child Measures

	<u>Infant</u>	<u>Young toddler</u>	<u>Older toddler</u>	<u>Preschool</u>
<u>Socio-emotional</u>				
Attachment security with care giver	X	X	X	X
Sociability with care giver	X	X	X	X
Aimless wandering	X	X	X	X
Peer play level	X	X	X	X
Child-perceived acceptance				X
Teacher-rated acceptance				X
Personal maturity			X	X
<u>Language and cognitive</u>				
Receptive vocabulary				X

(table continues)

	<u>Infant</u>	<u>Young toddler</u>	<u>Older toddler</u>	<u>Preschool</u>
<u>Language and cognitive</u> Adaptive language inventory			X	X
Child-perceived competence				X
Teacher-rated competence				X

Following the observation, the researcher completed the Waters and Deane Attachment Q-Set (1985) (inter-rater reliability = .85 kappa). This Q-Set assesses the child's security of attachment to and sociability with care givers. It is an observational alternative to the Ainsworth Strange Situation and mother attachment Q-Set scores have been validated with the Strange Situation (Waters & Deane, 1985; Howes, Rodning, Galluzzo, & Meyers, 1988). The child's individual ratings are correlated with criterion scores for the ideal child's security and sociability. Twelve-month criterion scores were used for children between the ages of 10 and 35 months. Thirty-six month criterion scores were used for children aged 36 months and older.³

Teachers completed the Adaptive Language Inventory (Feagans & Farran, 1979), the Entwisle Scale of Personal Maturity (Entwisle, Alexander, Cadigan & Pallas, 1987), and the teacher portion of the Pictorial Scale of Perceived Competence and Acceptance for Young Children (Harter & Pike, 1984). The Adaptive Language Inventory has been used in previous child care research and differentiated among children cared for in centers of varying quality (McCartney, 1984).

The Personal Maturity Scale consists of 14 items taken from the 1976 version of the National Survey of Children. Entwisle et al. (1987) reported an alpha reliability of .87 for the 14 items. This rating scale has significantly distinguished children in first grade who excelled in verbal achievement from their more typical classmates (Entwisle et al. 1987). The teacher version of the Perceived Competence and Acceptance Scale has been found to identify children with notably positive and negative perceptions of their own abilities (Harter & Pike, 1984).

Children old enough to be interviewed were individually given the Peabody Picture Vocabulary Test (PPVT) (Dunn, 1984) and the Pictorial Scale of Perceived Competence and Acceptance for Young

³Waters and Deane do not provide 24-month criterion scores.

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Children (PCS) (Harter & Pike, 1984). The children were interviewed in the center. In most cases, the interviews took place in a relatively quiet place away from the other children.

The PPVT is a standardized measure of children's receptive vocabulary with national norms. It has acceptable split-half and test-retest reliability, is well correlated with other measures of vocabulary, and is moderately predictive of school achievement.

The PCS has two subscales: (1) cognitive and physical competence, and (2) peer and maternal acceptance. Harter and Pike (1984) report internal consistency reliabilities of .79 and .86 for the two scales, respectively, for preschoolers. They also report a correlation of .48 between the lack of maternal acceptance subscale and ratings of depressed affect. There is also evidence that children who had been held back in school, recently moved or who were pre-term infants had respectively significantly lower cognitive competence, peer acceptance, and physical competence scores.

Plan of analysis

The analysis of the NCCSS proceeded in stepwise fashion. First, descriptions were prepared for each area identified in *Figure 1*: adult work environment, child development environment, teacher characteristics, teacher-child interaction, children's development, and teacher turnover. These descriptions were derived separately for the total teaching staff, for teachers and assistant teachers, for all rooms in a center and for infant, toddler, and preschool rooms, and for all children and for infants, toddlers, and preschoolers. If the summary statistics (total teaching staff, all rooms, and all children) are given in the text of this report, no additional identifiers are needed. If the statistic refers to only specific groups (e.g., toddler classrooms or preschool children), it is identified as such.

Within each area (e.g., teacher characteristics) we used analysis of variance to compare centers with different auspices, voluntary compliance with FIDCR standards, accreditation, and family incomes. These comparisons are presented in the following "Classification of Centers" section. We used multiple regression techniques to test our hypothesized relations between areas. Where possible, we tested these relations at the center, room, and individual teacher level. The unit of analysis is specified in the text where appropriate.

To make comparisons between the Supply Study of the National Day Care Study and the NCCSS, the proportion of centers that were profit or non-profit and enrolled or did not enroll subsidized children

were made equivalent in the two samples using a weighting procedure.⁴ To make comparisons between the Center Study of the National Day Care Study and the NCCSS, we used centers located in Atlanta, Detroit, and Seattle. Unless otherwise noted, all findings reported in the text are statistically significant, at $p < .05$ or better.

Classification of Centers

The sample of centers was further classified along three dimensions to address the effects of center auspice and correspondence with quality guidelines on the quality and characteristics of child care centers and their teaching staff. First, to examine the role of auspice, child care centers operating under four different auspices (as characterized by center directors) were compared: (1) non-profit, non-sectarian centers; (2) church-sponsored centers, including those operated by synagogues (also non-profit), (3) for-profit chains, centers that are one of several operated by a single owner on a local or national basis, and (4) independent, for-profit centers. Second, we were interested in the role of regulations as they affect the quality of the child development and adult work environments in child care. Currently there are no federal regulations governing child care centers. Consequently, child care center policies and state standards vary dramatically. In order to shed light on whether centers that voluntarily meet a nationally acceptable level of quality offer higher quality care and better work environments, all participating centers were classified by whether they met all, some, or none of three provisions--staff training, ratios, and group size--contained in the federal regulations developed a decade ago but never fully implemented: the Federal Interagency Day Care Requirements (FIDCR) (see *Table 6* for specific provisions). Third, another criterion reflecting expert judgment about high quality child care settings is provided by the Accreditation Guidelines of the National Association for the Education of Young Children (NAEYC). To further explore relations between observed quality of care and compliance with quality guidelines, all centers were classified either as not participating in NAEYC's Accreditation project, participating but not accredited, and fully accredited.

⁴We employed the same method used in the National Day Care Study to define subsidized centers. If either five or more subsidized children were enrolled in a center or if more than 20% of the children enrolled were subsidized, a center was classified as subsidized.

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Table 6
Federal Interagency Day Care Requirements Provisions

RATIOS: (final regulations based on enrollment rather than attendance)

Birth - 2 years	1:3
2 years	1:4
3 to 6 years	1:9

GROUP SIZE: (final regulations based on enrollment rather than attendance)

Birth - 2 years	6
2 years	12
3 to 6 years	18

TRAINING:

All care givers without a nationally recognized child development credential regularly participate in specialized training.

Study Review

A panel of experts was selected to provide technical, conceptual, and policy-oriented reviews of the Study's design, analyses, and findings (inside back cover lists members of the review panel). This panel contributed to all phases of the NCCSS from its conceptual design to the final reporting of results. Members of the panel reviewed all major reports, advised the NCCSS staff, and made important suggestions that improved the design, implementation, and dissemination of the Study.

**PART II: CHILD CARE TEACHERS
AND THE QUALITY OF
CARE IN AMERICA**

CHAPTER 3: CHILD CARE TEACHERS

Who Works in Child Care Centers?

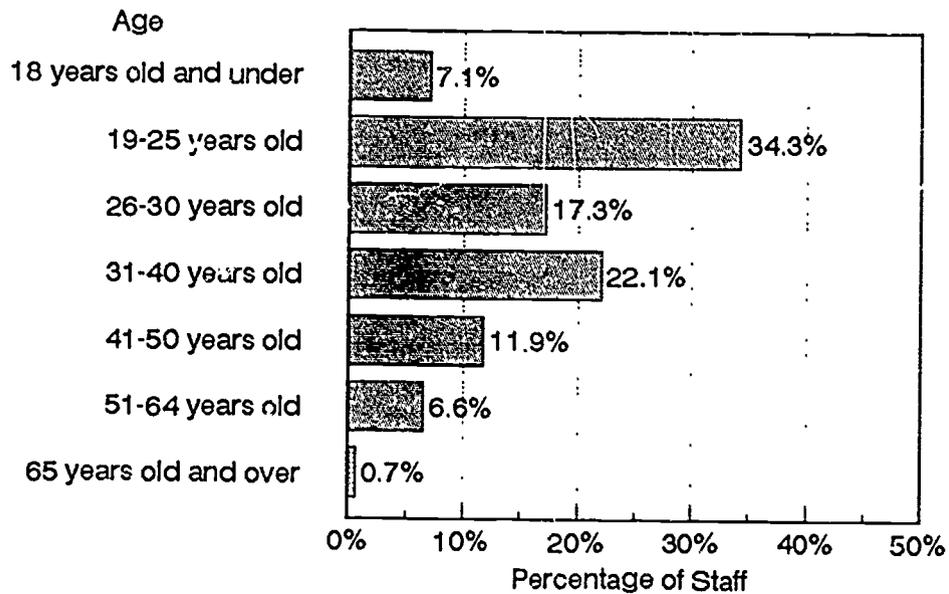
The National Child Care Staffing Study explored whether child care teaching staff in the late 1980's differ from their counterparts of a decade ago with respect to sex, age, ethnicity and professional preparation. Because it is commonly assumed that those who work with young children do so for "pin money" rather than to support themselves and their families, the Study also examined the living arrangements and family responsibilities of center-based child care teachers. In order to contribute to policy debates about what constitutes adequate training, the Study analyzed what characteristics of individual teachers' experience and education promoted effective caregiving. The following picture emerged from our findings.

Demographic Characteristics

The proportion of child care teachers who were women, their age distribution, and their ethnic backgrounds changed little between 1977 and 1988.⁵ Ninety-seven percent of the teaching staff in our Study were female and 81% were 40 years old or younger (see *Chart 3*). Approximately one-third of the teaching staff in 1977 and 1988 were members of minorities. While the percentage of minority teachers was higher in all sites than the percentage of minorities in the community at large, the percentage in some sites was three times as high.

⁵To make comparisons between the Supply Study of the National Day Care Study and the National Child Care Staffing Study, the proportion of centers that were profit or non-profit and enrolled or did not enroll subsidized children were made equivalent in the two samples using a weighting procedure.

Chart 3
Age Distribution of Teaching Staff, Full Sample



Teaching staff had varied living arrangements. Forty-four percent of the sample was married, and slightly more than half were single. Forty-one percent had children. Ten percent of the staff consisted of single parents living alone with their children. Twenty-two percent lived alone without children, and 24% lived with their parents (of which a few had children of their own).

There were large differences among teachers regarding financial responsibility for their households ($F(4,1140) = 106.02, p < .0001$). On average, the earnings of single parents made up 74% of their household income, followed by 68% for single teachers living alone and 47% for single teachers living with their parents. ($p < .05$). On average, married staff with children were responsible for 28% of their household income compared with 35% for those married without children.

Of the 41% of teaching staff with children, 46% had children younger than school-age. One-quarter of these teachers returned to work by the time their youngest child was three months old and 43% returned by the time their child was one year old or younger. A large number of staff brought their children with them to work (see *Table 7*).

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Table 7
Staff Using Own Center for Child Care

<u>Age of child</u>	<u>Percentage using</u>
Infant	41%
Young toddler	56%
Older toddler	70%
Preschooler	75%

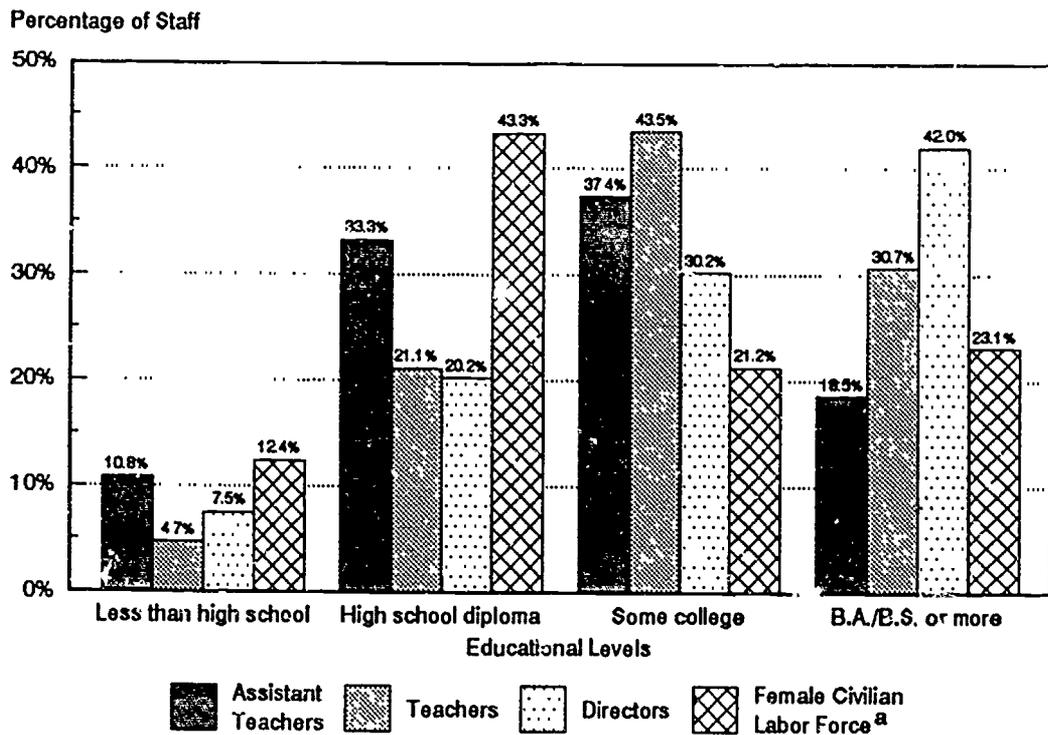
These teachers often received reduced-fee child care at their center of employment accounting, in part, for their low child care fees. Sixty-one percent of all teaching staff with children reported paying nothing for child care while 26% paid under \$50 a week and 11% paid between \$50 and \$99. Only two percent paid over \$100 a week.

Compared with the administrative directors of the centers, teaching staff were younger, more often female, and more often minorities. Only 21% of directors were under thirty compared with more than half of the teaching staff. Six percent of directors, compared with 3% of teaching staff, were male. Eighty percent of the directors, compared with 68% of the teaching staff, were white.

Professional Preparation and Experience

Staff in our sample were well-educated (see *Chart 4*). While less than half of women in the civilian labor force have attended college, more than half of the assistant teachers and almost three-quarters of the teachers in our Study had some college background. As we expected, directors were better-educated than teaching staff.

Chart 4
Educational Levels of Teaching Staff, Directors, and of the Female Civilian Labor Force, Ages 25-64



^aU.S. Department of Labor, Bureau of Labor Statistics, unpublished tables from March 1988 *Current Population Survey*

In understanding the child care work force, it is important to acknowledge ethnicity in regard to formal education and staff position. White teaching staff and directors were more likely to have completed a bachelor's degree or graduate work (see Table 8). White and black teaching staff were more likely to hold teacher and teacher/director positions compared with other minorities (see Table 9).

Table 8
Teaching Staff's Levels of Education by Ethnicity

	N	H.S. or less	Some college	B.A./B.S. or more
Black	286	36%	52%	12%
White	902	33%	42%	25%
Other minorities (Asian/Pacific Islander, Hispanic, American Indian)	117	30%	51%	19%

Chi-square (10) = 70.67 p < .0001

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Table 9
Staff in Different Job Positions by Ethnicity

	<u>N</u>	<u>Teacher and Teacher/Director</u>	<u>Aide/Assistant Teacher</u>
Black	286	64%	36%
White	902	68%	32%
Other minorities	117	52%	48%

Chi-square (6) = 28.43 $p < .001$

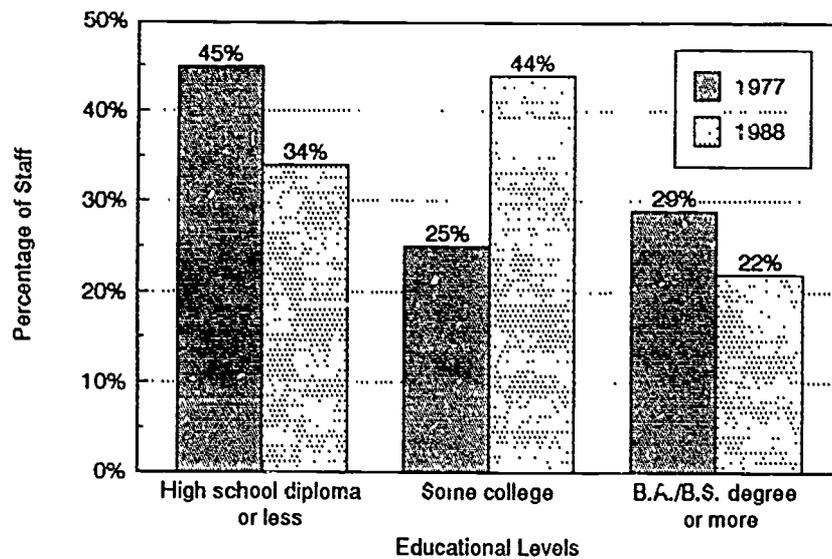
Sixty-five percent of teachers and 57% of assistant teachers had some course work in early childhood education or child development within the formal education system--at the high school, vocational school, two- or four-year college, or graduate school level. Half of the teaching staff with specialized training had received it at the college level or above. Early childhood training varied by job title. ($F(3,1293) = 12.31, p < .001$). Teacher directors and teachers had more course work in early childhood education at higher levels than teachers or assistants ($p < .05$). Teacher directors and teachers had comparable early childhood backgrounds compared with administrative directors, two-thirds of whom had some specific early childhood training. Teachers of different ethnic backgrounds received their early childhood training at different levels. Most notably, more black teachers received training in early childhood in vocational school than in college while other minorities tended to receive their early childhood training at the college level. This latter group, however, still held proportionately fewer teacher and teacher director positions (see *Tables 9 and 10*).

Table 10
Early Childhood Training Received at Different Educational Levels by Ethnicity

	<u>N</u>	<u>None</u>	<u>H.S.</u>	<u>Vocational school</u>	<u>Some college</u>	<u>B.A./B.S. or more</u>
Black	286	39%	21%	16%	13%	11%
White	902	37%	25%	4%	21%	13%
Other minorities	117	35%	27%	6%	20%	12%

Chi-square (10) = 77.62 $p < .0001$

Cha
Educational Levels of Teaching Staff: 1977-1988



Although over half of the sample had course work in early childhood education, only one-quarter had professional certification in any field. Only 6.6% had an early childhood certificate and 2% had Child Development Associate (CDA) credentials. Teaching staff with certification had received it in elementary or secondary education, nursing, social work, and miscellaneous fields. Sixteen percent of administrative directors had an early childhood credential and an additional 10% had an early childhood and elementary credential.

In-service training in early childhood education was relatively uncommon. Only 25% of teaching staff reported receiving 15 hours or more of in-service training within the previous 12 months. Some differences in in-service training were found by job title ($F(2,1293) = 5.89, p < .001$). Teacher/directors were more likely than aides to receive in-service training ($p < .05$).

Our child care teaching staff was substantially more experienced in 1988 than in the past (see *Chart 5*). Twenty-nine percent of the teachers and 58% of the assistants had been teaching in child care three years or less when interviewed. But 19% had been working in child care for 10 years or more. In 1977, only 5% had been in the field this long (Ruopp et al. 1979). Experience in the field varied by job title ($F(3,1293) = 41.09, p < .0001$). Teacher/directors had more years in the field and in their current

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center than teachers. Teachers, however, were more experienced than assistants or aides ($p < .05$). Administrative directors had been employed in the center much longer than most teachers. Their average tenure was over five and one-half years (67.5 months). As a group they appear to have a long term commitment to the field. Eighty-two percent had prior experience in the early childhood field before assuming their center directorship.

Professional Identification

There was no link between commitment to child care as a career and membership in professional organizations. Only fourteen percent of the teaching staff belonged to a child-related professional group. Only four percent were represented by a trade union. However, teachers belonging to either professional organizations or unions differed in their professional preparation and experiences. Teachers belonging to professional organizations had more formal education. Teachers belonging to either a professional organization or a union had higher levels of early childhood education, more hours of current in-service training, and had remained in their positions for longer periods of time. They also had lower six-month turnover rates and earned higher wages (see Table 11).

Table 11
Union and Professional Membership by Educational Level, Current Training, Months in Position, Wage, and Turnover

	<u>in union</u>		t	<u>Membership</u>		t	<u>in professional organization</u>	
	<u>Yes</u>	<u>No</u>		<u>Yes</u>	<u>No</u>			
Number	59	1247		188	1121			
Level of formal education	2.3	2.2	.59	3.1	2.1	10.72***		
Early childhood education level	2.0	1.4	4.46***	2.2	1.3	7.85***		
Hours of current in-service training	55.3	18.2	2.82*	47.1	15.3	6.59***		

(table continues)

3: Child Care Teachers

	<u>Yes</u>	<u>No</u>	<u>t</u>	<u>Yes</u>	<u>No</u>	<u>t</u>
Months in position	41.1	31.9	2.24*	36.8	21.6	4.78***
Hourly wages	\$6.72	\$5.28	6.25**	\$6.67	\$ 5.13	11.97***
Six-month turnover	.17	.38	2.69**	.30	.39	1.98*

Note: Level of formal education was scored as: 1 = high school or less, 2 = some college, 3 = A.A. degree, 4 = B.A./B.S. degree or more. Level of early childhood education was scored as: 0 = none, 1 = high school, 2 = vocational education, 3 = some college or A.A. degree, 4 = B.A./B.S. degree or more.

* $p < .05$ ** $p < .01$ *** $p < .001$

In certain respects, the center-based child care work force has changed little in the last twelve years. Most child care teachers are women in their child-bearing years, almost half of whom have children of their own. Many child care teachers, in particular those holding lower-paid assistant teacher and aide positions are members of minorities. Differences between the teaching staff of today center around their education and work experience. While the latter is somewhat greater, the former presents a more complex picture. As in the 1970's, the average teaching staff member today has completed more years of formal education than the average American worker. But in 1977, while more teaching staff had only a high school education, more had also completed four years of college (see *Chart 5*). What does this portrait of child care teaching staff suggest for the quality of child care services? We now turn to understanding what differences individual teacher characteristics make in teachers' behavior toward children.

From Teacher Background to Teacher Behavior

One of the most well-established relations in child care research is the one between teacher characteristics and teacher behavior (Phillips & Howes, 1987). We expected teachers, depending upon their education and training, to differ from each other in their behavior toward children. We were particularly interested in the relations between formal education, specialized training in early childhood education, and teacher behaviors. Many advocates and some researchers (e.g., Ruopp et al. 1979) support the position that specialized child-related training is the critical ingredient in teacher preparation. Other advocates and researchers (e.g., Berk, 1985) have argued that formal education is at least as important, if not more important, than specialized training.

We found formal education and specialized training to be moderately inter-related (see *Table 12*). Experience or the number of years in the child care field was unrelated to other specialized training or formal education.

Table 12
Intercorrelations Between Measures of Teacher Characteristics

	<u>Formal education</u>	<u>Early childhood education</u>	<u>Years of experience</u>
Formal education	--	.36	.02
Early childhood education	--	--	-.02

Note: Level of formal education was scored as: 1 = high school or less, 2 = some college, 3 = A.A. degree, 4 = B.A./B.S. degree or more. Level of early childhood education was scored as: 0 = none, 1 = high school, 2 = vocational education, 3 = some college or A.A. degree, 4 = B.A./B.S. degree or more.

We used these three characteristics of teachers to predict teacher behavior with children: formal education, specialized early childhood education training, and years of experience (see *Table 13*). In all age groups, a teacher's amount of formal education was the strongest predictor of appropriate caregiving, with specialized training emerging as an additional predictor in infant classrooms. Teacher sensitivity, harshness, and detachment in all classrooms also were best predicted by formal education.

Table 13
From Teacher Background to Teacher Behavior

Teacher-child interaction	Predicted by	R	Beta	R ²	F
<u>Sensitivity</u>					
All teaching staff	Formal education	.26	.26	.07	92.12***
Teachers	Formal education	.30	.30	.09	82.22***
	Formal education	.38	.38	.15	13.66***
	Formal education	.29	.29	.08	9.97***
	Formal education	.24	.24	.06	17.88***
Assistants	Formal education	.13	.13	.02	7.91**
	No significant predictors				
	Formal education	.35	.35	.12	7.21**
preschoolers	Formal education	.19	.19	.04	4.76*
<u>Harshness</u>					
All teaching staff	Formal education	.10	-.10	.01	15.26***
Teachers	Formal education	.12	-.12	.02	12.73***
	Formal education	.26	-.26	.07	6.02***
	No significant predictors				
	Formal education	.25	-.25	.06	18.20***
Assistants	Formal education	.15	-.15	.02	10.32**
	No significant predictors				
	No significant predictors				
	Formal education	.25	-.25	.06	8.29**
<u>Detachment^a</u>					
All teaching staff	Formal education	.13	-.13	.02	22.19***
Teachers	Formal education	.11	-.11	.01	10.34***
	No significant predictors				
	No significant predictors				
	No significant predictors				
Assistants	No significant predictors				
	No significant predictors				
	Early childhood education	.46	-.46	.21	4.28*
	No significant predictors				
<u>Appropriate caregiving^b</u>					
Infant	Formal education	.21	.20	.04	3.69*
	Early childhood education	.40	.22	.17	7.91**
Toddler	Formal education	.37	.37	.14	22.14***
Preschool	Formal education	.36	.36	.13	52.22***

^aMultiple regression using individual teacher as the unit of analysis. Specified model #1: Step 1: early childhood education + formal education; Step 2: Experience in child care; Step 3: interaction between early childhood education and experience. Model #2: Step 1: formal education; Step 2: early childhood education. Model #3: Step 1: early childhood education; Step 2: formal education. Teaching staff n = 1264; teachers n = 839, teachers in infant classrooms n = 101, teachers in toddler classrooms n = 184,

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teachers in preschool classrooms n=371, assistant teachers n=424, assistant teachers in infant classrooms n=57, assistant teachers in toddler classrooms n=88, assistant teachers in preschool classrooms n=182. Model 2 is tabled.

^bMultiple regression using room as the unit of analysis. Specified model#1: Step 1: early childhood education + formal childhood education; Step 2: Experience in child care; Step 3: interaction between early childhood education and experience. Model #2: Step 1: formal education; Step 2: early childhood education. Model #3: Step 1: early childhood education; Step 2: formal education. Infant rooms n = 85, Toddler rooms n = 151, Preschool classrooms n = 313. Model 2 is tabled.

*p < .05 **p < .01 ***p < .001

This analysis makes clear that child care experience is a poor predictor of teacher behavior toward children. Experience in the child care field was unrelated to formal education and did not emerge as a predictor of teacher behavior. The unimportance of experience suggests that hiring practices which give equal weight to experience, education and training may be over-estimating the role of experience in producing good teaching behavior.

We compared the behavior of teachers with different levels of formal education to see how formal education affects teacher behavior. Teachers with bachelor's degrees or more were more sensitive, less harsh and detached, and more appropriate with infants, toddlers, and preschoolers than were teachers with less formal education (Scheffe = .05) (see *Table 14*). This suggests that it is not only more education but, in particular, college degrees that make a difference in teaching behavior.

Table 14
Comparison of Teaching Behavior of Teachers with Varying Levels of Formal Education

	<u>Levels of formal education</u>				<u>F</u>
	<u>High school</u>	<u>Some college</u>	<u>A.A. degree</u>	<u>B.A./B.S. degree or more</u>	
Number of teachers	432	457	115	197	
<u>Teacher behavior</u>					
Sensitive	26.2	28.2	31.0	32.0	25.29**
Harsh	15.3	14.9	14.5	14.0	4.27**
Detached	7.1	6.7	6.3	5.7	5.47**
<u>Appropriate caregiving</u>					
infant/toddler	2.8	3.3	4.3	4.7	10.98**
preschool	3.1	3.4	4.4	4.8	15.05**

Note: Level of formal education was scored as: 1 = high school or less, 2 = some college, 3 = A.A. degree, 4 = B.A./B.S. degree or more.

**p < .01

Teachers' specialized training in early childhood education was not a strong predictor of teacher behavior. However, specialized early childhood education training and formal education were inter-related. Therefore we further examined the role of specialized training. We conducted three additional analyses to further our understanding of formal education and specialized training. Because we suspected that not all specialized training is equally effective in producing good teacher behavior, we examined differences in teacher behavior when teachers had different levels of training. We also asked whether our teachers with higher levels of formal education were also likely to have higher levels of early childhood education training. Finally, we compared teacher behaviors of staff with varying combinations of formal education and early childhood education training.

We compare teacher behaviors of teachers with varying levels of early childhood education training in *Table 15*. Teachers with at least a bachelor's degree in early childhood education engaged in more appropriate caregiving in infant/toddler ($F(4,520) = 6.96, p < .01$; Scheffe = .05) and preschool ($F(4,733) = 5.46, p < .01$; Scheffe = .05) classrooms than teachers with training at the vocational education level or less. Teachers with at least a bachelor's degree in early childhood education were rated as more sensitive ($F(4,1286) = 2.30, p < .01$; Scheffe = .05) and less detached ($F(4,1286) = 2.30, p < .01$; Scheffe = .05) than teachers with training at the vocational education level or less. This analysis suggests that specialized training at the post-secondary level is more effective in preparing good teachers than is specialized training at the high school or vocational education level.

Table 15
Teacher-Child Interaction by Different Levels of Early Childhood Education (ECE)

Level of ECE training	<u>Teacher behavior</u>				
	<u>Appropriate caregiving</u>		Sensitivity	Harshness	Detachment
	<u>Infant</u>	<u>Preschool</u>			
None (478)	3.96	4.32	27.82	15.03	6.36
High school (308)	4.02	4.29	26.85	14.92	6.48
Vocational education (92)	4.18	4.21	26.21	15.71	6.53

(table continues)

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Level of ECE training	Appropriate caregiving		Sensitivity	Harshness	Detachment
Some college (250)	4.46	4.65	30.23	14.28	5.91
B.A./B.S. degree or more (154)	5.06	4.74	31.06	14.31	5.83

We then asked whether teachers with more formal education had received early childhood education training at higher levels. Teachers who had more formal education also had higher level specialized early childhood education training (chi-square (12) = 938.32, $p < .001$). As can be seen in *Table 16*, 63% of teaching staff with bachelor's degrees had either taken post-secondary courses in or graduated from an early childhood education program.

Table 16
Levels of Formal Education and Early Childhood Education

<u>Teachers</u> <u>ECE level</u>	<u>Level of formal education</u>			
	<u>H.S. or less</u>	<u>Some college</u>	<u>A.A.</u>	<u>B.A./B.S. or more</u>
Number of teaching staff	434	466	119	281
None	48%	35%	21%	34%
High school	35%	25%	11%	11%
Vocational education	11%	8%	2%	2%
Some college	6%	32%	66%	24%
B.A./B.S. or more	0%	0%	0%	29%

Therefore, the most highly educated teachers in our sample also tended to have high levels of early childhood education training. Since specialized training at the college level tends to be the most effective type of training and most of our highly educated teachers also had effective specialized training, it is difficult to determine the relative influences of training and education on our most highly skilled teachers.

In order to distinguish further the roles played by specialized training and formal education, we

divided our teaching sample into five categories: (1) teachers with a bachelor's degree or more and college-level specialized training in early childhood education; (2) teachers with a bachelor's degree and no specialized training; (3) teachers without a bachelor's degree but with college-level specialized training in early childhood education; (4) teachers with no bachelor's degree and specialized training at the high school or vocational education level; and (5) teachers with no bachelor's degree and no specialized training. We compared each group's teaching behaviors (see *Table 17*). Teachers of infants, toddlers, and preschoolers with a bachelor's degree and with or without specialized training (groups 1 and 2), or with no bachelor's degree but with specialized training at the college level (group 3), were more sensitive in their teacher-child interactions than teachers with no bachelor's degree and either no training or only training at the high school or vocational school level (groups 4 and 5) (Scheffe = .05). In other words, either a bachelor's degree or specialized training at the college level was associated with higher quality caretaking.

Table 17

Comparison of Teaching Behaviors of Teachers with Varying Levels of Formal Education and Specialized Training

	B.A. plus college training	B.A. plus no training	No B.A. plus college training	No B.A. plus less than college training	No B.A. plus no training	F
	1	2	3	4	5	
Number of teachers	147	131	257	362	384	
<u>Teacher behavior</u>						
Sensitivity	31.2	30.2	30.0	26.5	26.1	23.95**
Harshness	14.0	14.2	14.5	15.3	15.4	3.78*
Detachment	5.8	5.8	5.9	6.6	6.6	5.07*
Appropriate caregiving infant/toddler	4.9	4.3	4.6	4.0	3.9	9.25**
preschool	4.9	4.7	4.5	4.2	4.2	11.43**

* $p < .05$ ** $p < .01$

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A slightly different picture emerged for appropriate caregiving. Teachers of infants and toddlers were more appropriate with children when they either had a bachelor's degree and college-level specialized training (group 1) or no bachelor's degree but specialized training at the college level (group 3) than if they had no bachelor's degree (group 2) and either no specialized training or specialized training at the high school or vocational school level (groups 4 and 5) (Scheffe = .05). This finding highlights the importance of high level specialized training for infant and toddler teachers. It runs counter to the popular notion that any "grandmotherly" type can teach babies because all one needs to know is how to rock them and change their diapers. We suspect that college-level specialized training for infant and toddler teachers provides them with basic child development knowledge essential for understanding and responding to the unique, rapid course of development during this early period in a child's life.

Preschool teachers were more appropriate with children when they either had bachelor's degrees with or without specialized training (groups 1 and 2) or had no bachelor's degree but specialized training at the college level (group 3) than if they had no bachelor's degree and either no training or only training at the high school or vocational education level (groups 4 and 5) ($F = p < .0001$; Scheffe = .05). Thus, there appear to be alternative routes to effective teaching for preschool teachers. Either the teacher has a bachelor's degree or she has specialized training at the college level.

As this report went to press, federal legislation was pending that would require teachers to have 15 hours of in-service specialized training each year. We examined the effectiveness of this provision by comparing teachers with 15 hours or more of current in-service training with those who had less than 15 hours. Only 25 percent of our sample had 15 hours or more of annual in-service training. Teachers with this training engaged in more appropriate caregiving, were more sensitive, less harsh, and less detached than teachers with under 15 hours (see Table 18).

Table 18
Teacher-Child Interaction and Current Hours of Early Childhood Education Training

	<u>15 hours or more</u>	<u>Less than 15 hours</u>	t
Number	327	982	
Appropriate caregiving infant/toddler	4.4	4.0	2.35**
preschool	4.7	4.3	5.15**
Sensitive	29.7	27.7	4.80***
Harsh	14.4	15.0	2.07*
Detached	6.0	6.4	2.25*

* $p < .05$ ** $p < .01$ *** $p < .001$

Our examination of the influence of teacher background characteristics on teacher behavior presents a fairly simple picture when experience is considered. Spending more years in the field of child care was not a good indication of teachers' behavior. In contrast, the influences of formal education and specialized child-related training on teacher behaviors were positive but not straightforward. Formal education was a better predictor of teacher behavior than specialized training. However, both formal education and very high levels of specialized training prepare teachers to be effective in the classroom; most of the teachers with bachelor's degrees also had college-level early childhood education training. For preschool teachers, it seems a bachelor's degree in any subject or specialized training at the college level is an effective route to competent teaching. To be competent, infant and toddler teachers appear more likely to need college-level specialized training.

Why is a bachelor's degree without specialized early childhood training sufficient for working effectively with preschoolers but not with infants and toddlers? There may be more good models of appropriate caregiving or teacher behavior for preschool teachers in the general culture than there are for infant and toddler teachers. This country has a longer history of providing excellent preschool full-day programs than of providing model infant and toddler programs. We suspect that teachers with B.A. degrees but no specialized training may have benefited from exposure to these cultural models. Another possible explanation centers on the children. Because of their verbal skills and socialization,

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preschoolers may be more able to guide the teacher into effective caregiving behavior. This, however, raises the question of why college-educated teachers respond more appropriately to children's cues. A final explanation concerns possible differences between teachers with either access to or the motivation to pursue more formal education and those without access or motivation. The NCCSS could not access this possibility; thus how these factors may have influenced associations between education, training and teacher's behavior with children were not examined.

CHAPTER 4: THE WORK ENVIRONMENT FOR ADULTS

Given the growing importance of child care in society, we wondered whether child care work had become a more viable occupation during the last decade. We were also interested in how the tremendous variation in the backgrounds of early childhood teaching staff are reflected in the nature of child care center jobs and teachers' satisfaction with them. Specifically, we wanted to know if teaching staff with varied professional preparation were compensated differently, received different benefits, worked under different conditions, and whether they viewed their jobs differently.

Compensation

Child care teaching staff constitute a very poorly-paid work force. The average hourly wage in 1988 was \$5.35 which is an annual income of \$9,363 for full-time (35 hours/50 week year-round) employment. The 1988 poverty threshold for a family of three (the average family size of staff in our sample) was \$9,431 a year (U.S. Department of Commerce, unpublished data). Fifty-seven percent of our sample earned \$5 per hour or less (see Table 19).

Table 19
Distribution of Wages, Full Sample

<u>Amount earned</u>	<u>Teachers</u>
\$4 or less per hour	28.0%
\$4.01 to \$5	28.8%
\$5.01 to \$6	16.3%
\$6.01 to \$7	11.2%
\$7.01 or more	15.7%

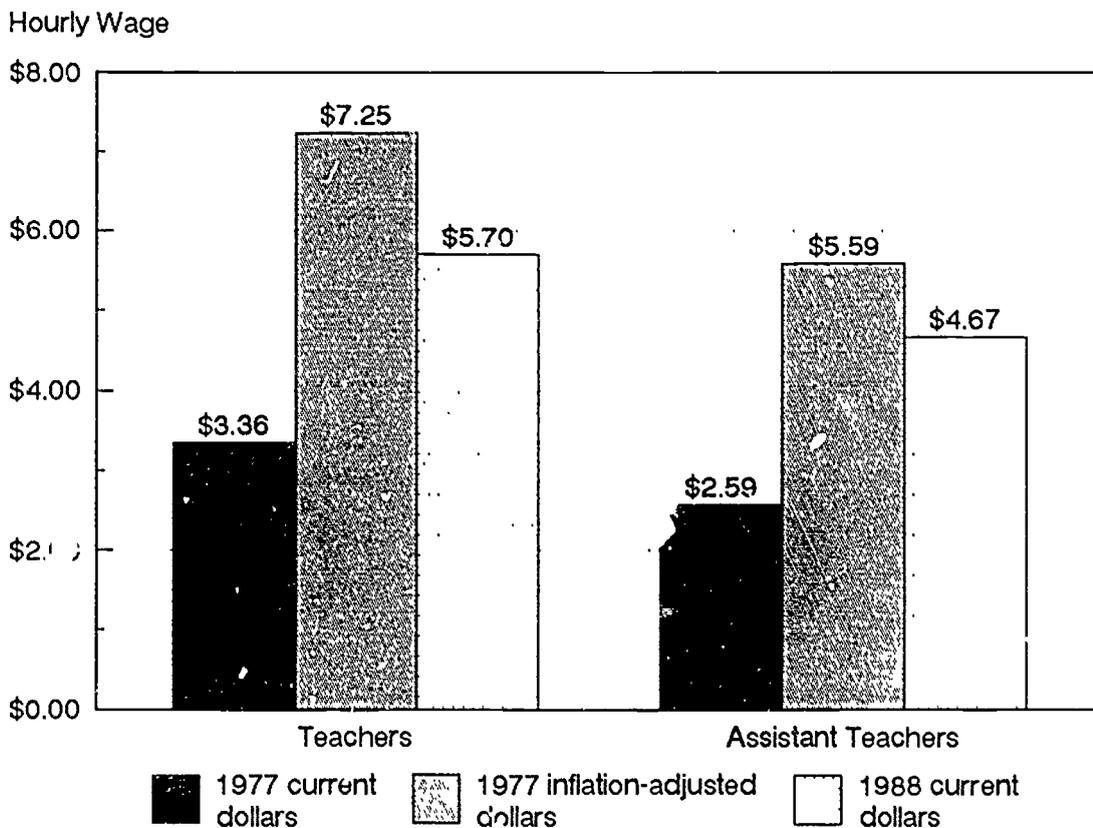
Most staff got no yearly cost-of-living adjustments (COLA) or merit increases. The recent increase in the federal minimum wage to an eventual \$4.25 an hour would raise the earnings of approximately one-third of our sample. However, if the hourly minimum wage of \$4.55 proposed by Congress and vetoed by the President in 1989 had been implemented, forty percent of the staff in our sample would now be paid more.

Despite gains in overall formal education and experience, child care teaching staff were paid even

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less in 1988 than in 1977. Wages, when adjusted for inflation, dropped dramatically: teachers' earnings fell by 27 percent and assistants' by 20 percent (see *Chart 6*).

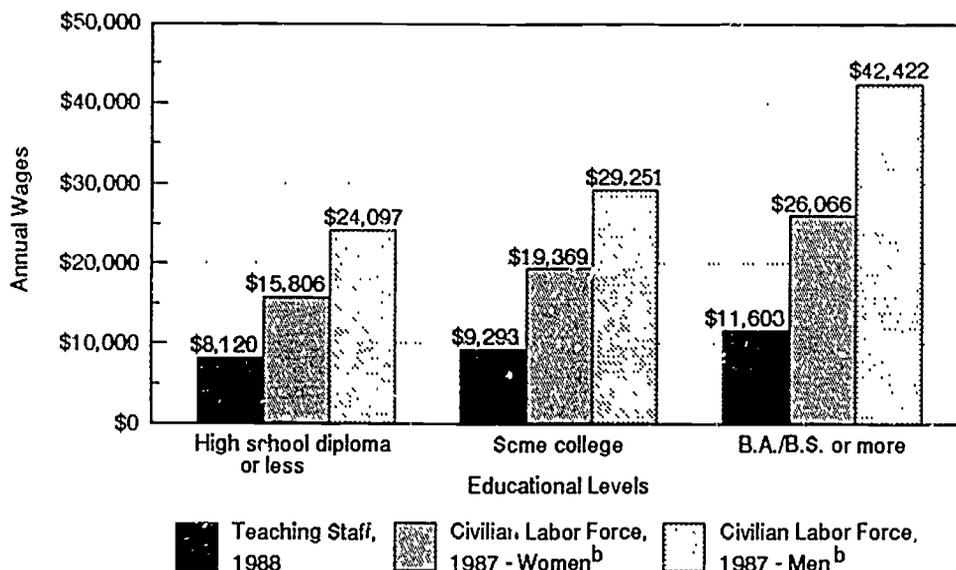
Chart 6
Average Wages: 1977-1988



Child care teaching staff are typically paid to work 35 hours each week year-round. Child care teachers' wages are essential to their family incomes. Forty-two percent of the teaching staff contributed at least half of their household income; one-quarter of the teachers contributed over two-thirds. To supplement their income, one-quarter of full-time teaching staff in 1988 worked a second job, while only seven percent did so in 1977.

It is staggering how little child care staff earn compared with other comparably educated women in the work force. When child care staff wages are compared with the wages of comparably educated men, the disparities are even more striking (see *Chart 7*).

Chart 7
Wages of Child Care Teaching Staff Versus Civilian Labor Force^a



^aFull-time annual earnings based on 35 hours per week/50 weeks per year
^b1988 data not available.

Source: Money Income of Households, Families, and Persons in the United States: 1987, Current Population Reports, Series P-6, No. 162, Table 36

Examining variation in child care wages by staff position reveals a very slight wage scale. ($F(3,1295)=42.6, p < .001$). Teacher/directors and teachers earn slightly over one dollar more per hour than assistant teachers or aides ($p < .05$). As seen in Tables 20 and 21, the only notable increase in wages occurred for college graduates and for administrative directors who do not teach. Yet the amount of the increase would not cover the cost of acquiring that education. Little financial incentive exists for teaching staff to obtain more education, training, or experience.

Table 20
Staff Position Wages by Educational Level

	Aides	Assistant teachers	Teachers	Teacher/Directors	Directors
Number	158	286	805	60	272
High school or less	\$4.40	\$4.51	\$4.74	\$4.81	\$6.64
Some college	\$4.45	\$4.88	\$5.56	\$5.66	\$9.69
B.A./B.S. degree	\$4.27	\$5.32	\$6.53	\$6.98	\$11.75
Post-college	\$5.75	\$5.24	\$7.49	\$8.40	\$11.92

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Table 21
Relations Between Wages and Position, Education, Training, and Experience^a

	<u>Average hourly wage</u>	<u>F</u>
<u>Position</u>		
Teacher/Director	\$6.38	42.60***
Teacher	\$5.58	
Assistant Teacher	\$4.86	
Aide	\$4.48	
<u>Formal education</u>		
High school or less	\$4.73	8.77***
Some college	\$4.95	
B.A./B.S. degree	\$5.88	
More than B.A./B.S.	\$6.66	
<u>Early childhood education</u>		
High school	\$4.65	66.48***
Vocational education	\$4.89	
Some college	\$5.02	
A.A. degree	\$6.92	
B.A./B.S. degree or more	\$7.94	
<u>Experience</u>		
Less than 1 year	\$5.19	.12
More than 1 year	\$5.34	

^aAnalysis of variance, based on full-time teaching staff; unadjusted means

* $p < .05$ ** $p < .01$ *** $p < .001$

Similar relations were found for administrative directors. Directors with early childhood education training received somewhat higher wages (\$10.58 versus \$8.38; $t(245) = 4.34$) and directors with college degrees earned more than directors with less education (\$11.75 versus \$9.69 or less; $F(2,308) = 12.69$, $p < .001$; Scheffe = .05).

Administrative directors' wages, while not high given their level of education, were substantially greater than those for teaching staff. Still, 10% earned \$5 an hour or less and only 8% earned over \$15 an hour. The average wage was \$9.85 an hour or an annual income of \$20,488 (40-hour week, 52-week year, the average work year for administrative directors). Almost three-quarters of directors had some college education and 42% had a bachelor's degree or more. But directors earned only three-quarters as much as comparably educated women and one-half as much as comparably educated men in the civilian labor force.

Benefits and Working Conditions

The low salaries of child care teaching staff were not offset by generous benefit packages. Even full-time staff received minimal employment benefits (see *Table 22*). Of both full- and part-time staff, the majority received only one benefit: reduced-fee child care at their centers. Only one-third of all teaching staff and 42% of full-time staff received fully- or partially-paid health insurance while 54% of the nation's wage and salary workers had employer-paid health insurance (U.S. Department of Labor, Bureau of Statistics, 1988). Cost-of-living adjustments were received by about one-third of the child care staff. Periodic merit increases were somewhat more common, with 41% of all teaching staff and 45% of full-time staff receiving them. Staff did not necessarily receive both forms of wage increases. Less than one-quarter received life insurance (30% of full-time staff), and only 17% (22% of full-time staff) received a retirement plan. Interestingly, slightly more centers not offering reduced-fee child care (38%) had fully- or partially-paid health insurance plans than those that did (32%) (chi-square(1) = 3.724, $p < .054$). Compared with health insurance, reduced-fee child care is a no- or low-cost benefit for centers to offer.

Table 22
Benefits Received by Teaching Staff

	<u>All staff</u>	<u>Full-time staff</u>
Yearly COLA	33.7%	35.0%
Merit increases	41.7%	44.6%
Reduced-fee child care	58.8%	59.3%
Retirement	16.9%	21.6%
Life insurance	23.8%	29.5%
Paid parental leave	6.4%	8.2%
Partially- or fully-paid health insurance	33.3%	41.9%

Receipt of five of these seven benefits differed significantly by staff position as seen in *Table 23*.

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Table 23
Benefits Received by Staff Position

Benefit	Teacher/ Director	Teacher	Asst. Teacher	Aide	Chi-square
Yearly COLA	42%	37%	29%	24%	12.731**
Merit increases	31%	41%	31%	17%	17.118***
Reduced-fee child care	71%	62%	55%	43%	19.292***
Health insurance	31%	41%	31%	17%	32.900***
Life insurance	19%	26%	22%	16%	9.344*

Note: n for teacher/directors = 60, for teachers = 805, for assistant teachers = 286, for aides = 158

* $p < .05$ ** $p < .01$ *** $p < .001$

Available benefits also differed among women in varied living arrangements (see *Table 24*). Married women without children were significantly more likely than those with children to report receiving partially- or fully-paid health insurance. The identical pattern characterized single women with and without children (chi-square (4) = 58.035, $p < .0001$). This finding must be placed in the context of the low salaries of child care workers. Those women who are not covered by a husband's health insurance plan are likely to have difficulty purchasing health insurance on their own. Additionally, women with no children and those who lived alone or with friends were significantly more likely to report receiving an annual COLA than were women in all other living arrangements (chi-square (4) = 22.203, $p < .0001$). Not surprisingly, women with children were significantly more likely than women without children to report receiving reduced-fee child care (chi-square (4) = 31.677, $p < .0001$).

Table 24
Benefits Received by Women in Differing Living Arrangements

	With spouses, no children	With spouses and children	Alone or with friends, and children	Alone or with friends no children	Other
Yearly COLA	31.2%	26.9%	33.9%	45.5%	33.6%
Merit increases	45.0%	39.5%	39.5%	43.0%	42.3%
Reduced-fee child care	52.2%	69.0%	63.7%	46.8%	55.4%
Retirement	17.9%	15.2%	20.8%	19.1%	14.0%
Life insurance	25.6%	22.2%	27.3%	26.1%	21.7%
Paid parental leave	5.0%	5.5%	8.0%	9.3%	5.2%
Partially- or fully-paid health insurance	49.5%	24.4%	35.3%	47.1%	28.7%

The majority of all teaching staff and full-time staff received at least one day of sick leave, paid holiday, and paid vacation (see *Table 25*). However, despite their exposure to ill children and substantial hours of uncompensated overtime work, 43% of child care teaching staff failed to receive any days of sick leave and about two-thirds failed to receive any paid holidays or vacation time. Of the staff who did receive these benefits, the average number of days for sick leave, holiday time, and paid vacation was 9.14, 7.27, and 10.26, respectively. Eighteen percent were not paid for time spent preparing their curricula or attending educational or training sessions. Twenty-three percent did not have a written contract, job description, or formal grievance procedure. Staff in higher positions reported having each of these working conditions more often than other staff (all chi-squares at $p < .0001$).

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Table 25
Working Conditions for Teaching Staff

	<u>All staff</u>	<u>Full-time staff</u>
Sick leave	56.8%	66.8%
Paid holidays	67.2%	77.2%
Paid vacation	63.7%	76.0%
Paid preparation and training time	82.0%	83.4%
Written contract and formal grievance procedure	77.0%	78.1%

The Study paints a bleak picture for those who seek a career in child care. We found exceedingly low wages aggravated by limited fringe benefits and taxing working conditions. The decline in wages over the last decade coupled with the minimal rewards associated with more advanced professional preparation forecast a gloomy picture--a continuation and even worsening of the current crisis in recruiting and retaining qualified staff.

Job Satisfaction

Although extrinsic rewards in child care work are limited, previous research has demonstrated that intrinsic rewards are many. The Study sought to understand the interplay between the nature of child care work, teachers' job satisfaction, and the conditions under which they labor.

The job satisfaction of the sample's child care teaching staff presents a complex picture. On the one hand, two-thirds of the teaching staff viewed their child care work as a career rather than as a temporary job, and 80% replied affirmatively when asked if they would choose to work in child care if they had to decide again. One-third of the staff who left their centers at the time of the six-month follow-up calls had found new jobs in the child care field. On the other hand, when asked during the original interview if they expected to remain in their jobs, one-quarter of the teachers said that they were "very likely" to leave and 20% said "somewhat likely" to leave.

What explains this disparity between the indications of high job commitment among child care teaching staff and their high expected and actual turnover rates? One answer can be found in their

patterns of job satisfaction (see *Table 26*). Teachers were very satisfied with the nature of their work, particularly their relations with colleagues, opportunities for autonomy and challenge, and working conditions (see *Appendix D*). They received the most satisfaction from participating in the growth and development of children.

Table 26
Means and Standard Deviations for Job Satisfaction Factors, All Teaching Staff

<u>Factor</u>	<u>M^a</u>	<u>SD</u>
Co-worker relations	4.19	.65
Supervisor relations	4.07	.82
Opportunities for challenge	4.02	.62
Opportunities for autonomy	3.98	.78
Working conditions	3.91	.62
Job security	3.90	.77
Work/family relations	3.73	.77
Democratic director	3.60	.94
Job commitment	3.41	.42
Advancement opportunities	3.05	1.12
Work demands	3.00	.67
Perceived social status	2.83	.84
Salary and benefits	2.83	.76
Fairness of salary	2.61	.93

^a A score of 5.00 indicates high satisfaction; a score of 1.00 indicates low satisfaction. *Appendix D* lists the items included in each factor.

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Child care teaching staff, however, were dissatisfied with their salaries, benefits, and social status. They perceived their salaries to be unfair when considering the demands of their work. It appears that they enjoy the intrinsic demands and rewards of their work, but simply cannot afford to remain in the field. The low staff morale that was found to fuel turnover in prior studies (Hyson, 1982; Jorde, 1982; Kontos & Stremmel, 1987; Whitebook et al. 1982) may also be explained by the minimal respect society awards to child care work and teachers' own perceptions of their unfair salaries.

When job satisfaction is examined among the different staff positions, the data suggest that teaching staff who view child care as a temporary job are more satisfied than those who view it as a career. Aides ($M = 49.7\%$) were significantly less likely to view child care as a career than were teachers ($M = 69.8\%$), assistant teachers ($M = 61\%$), and teacher/directors ($M = 83.1\%$). Aides were also significantly more satisfied with their salaries ($F [3,1287] = 7.37, p < .01$). In light of these job satisfaction findings, it is not surprising that 89% of the child care teaching staff recommended better staff salaries to improve child care quality, 80% recommended improved staff benefits, and 79% recommended raising society's respect for child care work.

From Working Conditions to Job Satisfaction

We next questioned whether the teaching staff's job satisfaction was affected by variation in their work environments. To examine relations between adult working conditions and job satisfaction, eight facets of the adult work environment that showed relatively modest intercorrelations were used to predict the 15 satisfaction factors (see Tables 27 and 28.)

Table 27
Intercorrelations of Working Condition Variables Used in Regression Model to Predict Job Satisfaction

	(2a)	(2b)	(3)	(4)	(5)	(6)	(7)
(1) Staff wages	.39	.35	.53	-.03	.41	.00	.39
(2a) Quality of adult needs: Infant/toddler rooms		-.97	.40	-.09	.28	-.01	.41
(2b) Quality of adult needs: Preschool rooms			.33	-.09	.22	.02	.38
(3) Health benefits				-.07	.37	-.01	.42
(4) Reduced-fee child care					-.02	.05	.01
(5) Cost-of-living increases						-.01	.34
(6) Merit increases							.10
(7) Paid preparation time							

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Table 28
Predicting Job Satisfaction From the Adult Working Conditions

<u>Job satisfaction</u>	<u>Predicted by</u>	<u>Model R</u>	<u>Beta</u>	<u>Model R²</u>	<u>F</u>
Job-career:I/T	Staff wages	.145	.133	.021	ns
Job-career:P	Staff wages		.199		
	Reduced-fee child care	.268	.099	.072	5.57***
Autonomy:I/T	Paid prep time	.219	.229	.048	2.50*
Autonomy:P	Staff wages		.139		
	Reduced-fee child care		.118		
	Merit increases		.092		
	Paid prep time	.234	.107	.055	4.20***
Challenge:I/T	No significant predictors				
Challenge:P	Staff wages		.201		
	Paid prep time	.272	.166	.074	5.77***
Job comm:I/T	Paid prep time	.195	.181	.038	ns
Job comm:P	Staff wages		.086		
	Adult needs	.176	.106	.031	2.28*
Social status:I/T	Staff wages (-)	.205	-.174	.042	2.16*
Social status:P	Staff wages (-)		-.154		
	Adult needs		.137		
	Health benefits	.240	.118	.058	4.42***
Work demands:I/T	No significant predictors				
Work demands:P	No significant predictors				
Advance opps:I/T	Adult needs	.176	.127	.031	ns
Advance opps:P	Adult needs		.115		
	Health benefits		.122		
	Paid prep time	.235	.113	.055	4.22***
Work/family:I/T	Staff wages (-)		-.190		
	Reduced-fee child care		.248		
	Paid prep time	.360	.129	.129	7.38***
Work/family: P	Staff wages (-)		-.099		
	Reduced-fee child care		.284		
	Paid prep time	.333	.130	.111	8.99***
Democratic dir:I/T	Reduced-fee child care	-.133			
	Paid prep time	.243	.176	.059	3.10**
Democratic dir:P	Adult needs		.141		
	Merit increases		.094		
	Paid prep time	.257	.139	.066	5.14***
Salary/benefits:I/T	COLA		.118		
	Paid prep time	.224	.185	.050	2.65*

(table continues)

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<u>Job satisfaction</u>	<u>Predicted by</u>	<u>Model R</u>	<u>Beta</u>	<u>Model R²</u>	<u>F</u>
Salary/benefits:P	Staff wages		.120		
	Adult needs		.124		
	Paid prep time	.270	.184	.073	5.70***
Job security:I/T	Paid prep time	.207	.197	.043	2.28*
Job security:P	Paid prep time	.192	.153	.037	2.79**
Supervisor rels:I/T	Adult needs		.134		
	Paid prep time	.224	.187	.050	2.63*
Supervisor rels:P	Adult needs		.103		
	COLA		.097		
	Paid prep time	.197	.107	.039	2.91**
Co-worker rels:I/T	Reduced-fee child care (-)	-.142			
	COLA		.137		
	Paid prep time	.245	.054	.060	3.18**
Co-worker rels:P	COLA	.158	.098	.025	ns
Fair salary:I/T	COLA		.138		
	Merit increases	.226	.105	.051	2.65*
Fair salary:P	Merit increases		.121		
	Paid prep time	.270	.194	.073	5.71***
Working conds:I/T	Paid prep time	.219	.181	.048	2.48*
Working conds:P	Adult needs		.103		
	Paid prep time	.202	.175	.041	3.10**

Note: Stepwise multiple regression with individual teaching staff as the unit of analysis. Specified model: Step 1: Staff wages; Step 2: Quality of adult work environment; Step 3: Health benefits; Step 4: Reduced fee child care; Step 5: Cost-of-living increases, merit increases, paid preparation time. The model was run separately for infant and toddler teachers and for preschool teachers, creating a total of 30 regressions. Additionally, although the model attained significance in 23 of the 30 regressions, it accounted for at most only 7.4% of the variance in job satisfaction.

n 's = 355 for the infant/toddler variable and 513 for the preschool variables. I/T refers to infants and toddlers, P refers to preschoolers.

* $p < .05$ ** $p < .01$ *** $p < .001$

Different aspects of satisfaction were predicted by different facets of working conditions. Staff wages were a positive predictor of whether child care work was viewed as a career or job for both infant and preschool teaching staff; the availability of reduced-fee child care also predicted career versus job perceptions for infant staff. For all teachers, however, wages were a negative predictor of both perceived social status and work-family relations. It is possible that personnel with higher wages, whom prior analyses indicated were better educated and in higher staff positions, were more acutely aware of the

disparity between their status as child care workers and that of other comparably educated laborers. The association between higher wages and more conflicted work-family relations is perplexing and warrants further exploration. It is possible, for example, that staff with higher wages worked longer hours or had greater job responsibilities, leaving less time and energy for home and family. Beyond these general findings, higher staff wages predicted several other aspects of job satisfaction for preschool teachers: feeling challenged by their work, greater perceived job autonomy, higher job commitment, and greater satisfaction with salaries and benefits.

Paid preparation time was also linked to job satisfaction. Specifically, staff in centers offering paid preparation time perceived greater job autonomy and had better work-family relations. They also viewed their directors as more democratic, were more satisfied with their salaries and benefits, felt greater job security, judged their supervisor relations more favorably, and were more satisfied with their working conditions. For infant and toddler teaching staff only, paid preparation time was also positively linked to job commitment and co-worker relations. For preschool teaching staff, paid preparation time was related to the degree of job challenge, advancement opportunities, and perceived fairness of salaries. It appears that beyond the direct effects with regard to the curriculum, paid time to prepare the children's activities reaps positive benefits in the form of staff job satisfaction.

Reduced-fee child care, as noted above, was a second predictor of whether infant and toddler teaching staff viewed child care as a career. This benefit also was the most significant predictor of work-family relations, presumably because it lessened the stress of finding and paying for personal child care arrangements. For preschool teaching staff, reduced-fee child care was also positively associated with perceived job autonomy. However, for infant and toddler teachers, this benefit was associated with perceiving directors as less democratic and co-worker relations as less satisfying. This suggests that staff without young children, for whom this benefit is irrelevant, resent the inequity in benefits that inevitably occurs when reduced-fee child care is offered. This situation may be aggravated in light of prior findings that reduced-fee child care is often offered in the absence of other benefits, particularly health benefits, that would be welcome by all teaching staff.

The observed quality of adult needs using the Environment Rating Scales (see p. 25), also showed multiple, significant associations with job satisfaction (see *Tables 27 and 28*). For all teaching staff, perceived opportunities for advancement and satisfaction with supervisors were positively predicted by

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the quality of adult needs. For preschool teachers, the quality of adult needs predicted higher job commitment, as well as greater satisfaction with the social status, salary and benefits, director's policies (democratic director), and working conditions in child care.

Other variables of the adult work environment were not significantly linked to staff job satisfaction. Teachers who were offered merit increases perceived their salaries and benefits as fairer. For preschool teaching staff, merit increases also predicted greater feelings of job autonomy and more positive perceptions of directors as democratic. For all teaching staff, cost-of-living increases predicted greater satisfaction with co-worker relations. For infant and toddler teachers, cost-of-living increases predicted the level and fairness of salaries. For preschool teaching staff, increases predicted supervisor relations and health benefits were positively associated with perceived social status and advancement opportunities.

From the Adult Work Environment to the Child Development Environment

A major concern of the National Child Care Staffing Study was the significance of the adult work environment for the quality of care children receive. Spurred by the field and various salary surveys (Child Care Employee Project, 1989), we suspected that variations in the compensation, benefits, and working conditions of child care teaching staff would influence the environments created for children. To examine relations between the adult work environment and the quality of the child development environment, we used the adult work environment variables to predict the child development environment (see *Tables 29 and 30*).

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Table 29

Intercorrelations Among Measures of Adult Work Environment Used to Predict Child Development Environment and Turnover (n = 1309 teachers)

<u>Benefits</u>	<u>Wages</u>	<u>Benefits</u>				Child care
		Retirement	Health	Vacation	Holiday	
Retirement	.28	-	-.07	.31	.26	-.11
Health	.53	-	-	.52	.55	-.07
Vacation	.49	-	-	-	.58	.01
Holiday	.47	-	-	-	-	-.04
Child care	-.03	-	-	-	-	-
<u>Working conditions</u>						
Merit increases	.00	-.02	-.01	.01	.04	.05
COLA	.41	.23	.37	.34	.30	-.02
Paid breaks	.16	.19	.19	.19	.17	-.05
Job description	.00	-.11	-.07	-.02	.06	-.01
Paid prep time	.39	.29	.42	.35	.40	.01
Adult needs						
Infant/toddler	.39	.27	.40	.36	.34	-.09
Preschool	.35	.22	.33	.14	.23	-.09
<u>Job satisfaction</u>						
Career	.18	.08	.12	.18	.17	.07
Opp. for advancement	.02	.03	.07	.05	.02	.01
Salaries fair	.09	.06	.04	-.04	.01	-.06
Salaries & benefits	.11	.09	.14	.06	.10	.01
<u>Percentage of budget to teaching staff</u>						
	.28	.12	.24	.16	.24	-.07

(table continues)

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	<u>Working conditions</u>				<u>Adult needs</u>		
	<u>Merit</u>	<u>COLA</u>	<u>Breaks</u>	<u>Job description</u>	<u>Paid prep.</u>	<u>Infant/toddler</u>	<u>Pre-school</u>
<u>Working conditions</u>							
Merit	-	-.01	.09	.07	.10	-.01	.02
COLA		-	.18	.37	.34	.28	.22
Paid breaks			-	.44	.26	.41	.31
Job descr.				-	.19	.33	.31
Paid prep time					-	.41	.38
<u>Job satisfaction</u>							
Career	.08	.06	.08	.11	.14	.04	.09
Opp. for advancement	.07	.13	.07	.14	.12	.12	.09
Salaries fair	.13	.11	.13	.10	.11	.05	.09
Salaries & benefits	.14	.10	.14	.15	.19	.08	.15
<u>Percentage of budget to teaching staff</u>	.14	.18	.14	.16	.13	.26	.32

	<u>Job satisfaction</u>				
<u>Job satisfaction</u>	<u>Career</u>	<u>Advance</u>	<u>Salaries fair</u>	<u>Salaries & benefits</u>	<u>Percentage of budget to staff</u>
Career	-	.24	.11	.10	.03
Opp. for advancement		-	.41	.25	.07
Salaries fair			-	.63	.07
Salaries & benefits				-	.10

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Table 30
Predicting Child Development Environment From the Adult Work Environment^a

Child development environment	Predicted by	R	Beta	R ²	Δ	F
<u>Infants</u>						
Developmentally appropriate activity	Wages	.42	.20	.17		6.22**
	Adult needs	.52	.40	.28	.11	4.71**
Ratio	Wages	.34	-.06	.11		3.85*
	Health benefits	.47	-.31	.22	.11	2.24**
	Merit increases	.56	.35	.32	.10	6.35**
Group size	Wages	.36	-.36	.13		
	Merit increases	.42	.34	.18	.05	2.46*
<u>Young toddlers</u>						
Developmentally appropriate activity	Wages	.53	.37	.28		9.68**
	Adult needs	.59	.26	.35	.07	5.50*
Ratio	Wages	.37	.32	.14		4.11**
	Health benefits	.48	.24	.21	.07	5.15**
	Merit increases	.51	-.21	.26	.05	6.89**
Group size	No significant predictors					
<u>Older toddlers</u>						
Developmentally appropriate activity	Wages	.45	.41	.20		9.37**
	Satisfaction with salaries	.55	.35	.30	.10	3.64**
Ratio	Wages	.40	-.39	.15		4.85*
	Paid break	.47	-.24	.20	.05	3.58*
Group size	No significant predictors					
<u>Preschoolers</u>						
Developmentally appropriate activity	Wages	.48	.39	.23		20.45**
	Adult needs	.63	.23	.40	.17	30.53***
Ratio	Wages	.46	-.33	.21		18.33**
	Adult needs	.63	-.49	.40	.19	30.53***
Group size	No significant predictors					

^aMultiple regression using room as the unit of analysis. Three separate regressions were used to predict the best predictor from each cluster: Cluster 1: Total Benefits (retirement, health, paid vacation, paid holiday); Cluster 2: Total working conditions (merit increase, paid breaks written job description, cost

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of living increase, paid preparation time, adult needs from the ECERS or ITERS; Cluster 3: Total job satisfaction (commitment to work as a career, opportunities for advancement, salaries and benefits are fair) (this cluster used only to predict developmentally appropriate activity not group size or ratio). Model #1: Step 1: wages; Step 2: best predictor from benefits; Step 3: best predictor from working conditions; Step 4: best predictor from job satisfaction (this step used only to predict developmentally appropriate activities not group size or ratio); Step 5: Percent of budget center allocates to teaching staff. Infant rooms n=85; younger toddler rooms n=78; older toddler rooms n=73; preschool rooms n=313.

* $p < .05$ ** $p < .01$ *** $p < .001$

Teachers' wages were the most important predictor in the adult work environment for two indicators of quality in the child development environment: developmentally appropriate activity and ratios. Teachers with higher salaries worked in centers with better environments for children. As will be discussed below, developmentally appropriate activity and ratios predicted teacher-child interaction.⁶ Benefits, particularly health benefits, and working conditions measured by the adult needs subscale of the ECERS and ITERS combined with wages to predict the child development environment (see *Table 30*). Interestingly, merit increases negatively predicted the child development environment in infant and young toddler classrooms. Wages and benefits were higher and working conditions better in centers that arranged for staff to have overlapping shifts (see *Table 31*). These findings suggest that when child care dollars are used to better compensate staff and create good working conditions, the quality of care for children is also enhanced.

⁶Group size did not predict teacher behavior in the NCCSS, although it has in other studies including the National Day Care Study.

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Table 31
Differences in Adult Work Environment When Staff Overlaps

	Overlap		t
	No 34	Yes 193	
<u>Number of centers</u>			
<u>Infant</u>			
Wages (\$/hour)	3.89	5.58	6.89**
Benefits			
health	.18	.47	3.46**
child care	.54	.54	.00
paid maternity	.09	.87	2.92**
vacation days	3.82	7.38	4.63***
holidays	6.15	7.32	.40
Working conditions			
paid preparation	1.84	2.15	.80
written job descript.	1.64	1.68	.16
paid break	.29	.42	1.23
merit increase	.57	.80	1.01
COLA	.30	.66	1.90
Percentage budget for teaching staff	.45	.61	3.48**
<u>Toddler</u>			
Wages (\$/hour)	4.08	5.28	3.52***
Benefits			
health	.26	.42	1.69
child care	.54	.59	.57
paid maternity	.66	.49	.43
vacation days	4.18	6.80	2.41***
holidays	3.94	6.72	2.87
Working conditions			
paid preparation	1.76	2.27	1.64
written job descript.	1.16	1.74	2.88**
paid break	.21	.43	2.78**
merit increase	.44	.66	1.68
COLA	.19	.56	3.31***
Percentage budget to teaching staff	.46	.57	2.43**
<u>Preschool</u>			
Wages (\$/hour)	4.15	5.46	4.18***
Benefits			
health	.20	.40	3.27**
child care	.64	.57	.98
paid maternity	.33	.68	.83
vacation days	4.64	6.65	1.88
holidays	3.89	6.75	1.01

(table continues)

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	<u>Overlap</u>		t
	<u>No</u>	<u>Yes</u>	
<u>Preschool</u>			
Working conditions			
paid preparation	1.82	2.29	1.75
written job descript.	1.14	1.72	3.52**
paid break	.24	.44	2.81**
merit increase	.74	.74	.00
COLA	.22	.59	3.34***
Percentage budget to teaching staff	.50	.55	2.90**

*p < .05 **p < .01 ***p < .001

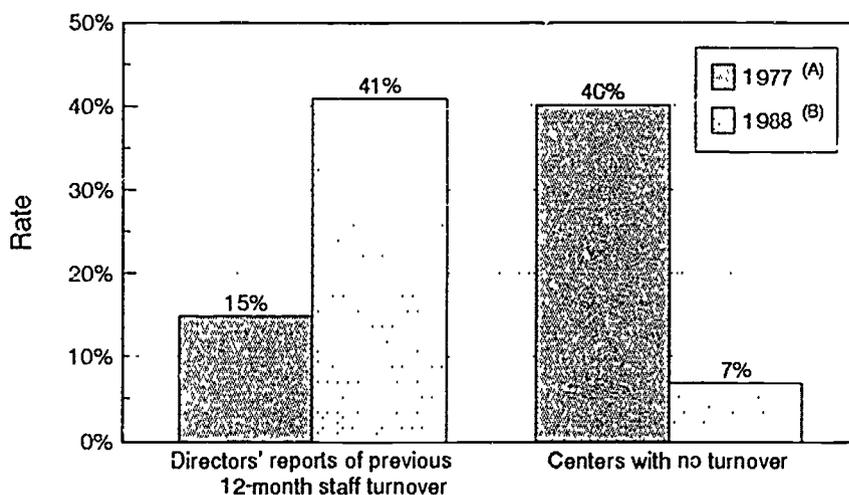
CHAPTER 5: TURNOVER

Turnover Rates for Teaching Staff

The continued loss of qualified teachers lies at the heart of the crisis facing America's child care centers. The National Child Care Staffing Study assessed the turnover problem by calculating current rates and comparing them with those of a decade ago. Our concern did not stop with the numbers of teachers leaving and the resulting instability for children. We worried that replacement staff are less adequately prepared for their jobs. Children experiencing the most turnover may be in double jeopardy if they face worsening care from less-educated and less-trained staff. To assess these trends, the Study examined both the outgoing and incoming staff.

Staff turnover rates were disturbingly high. Across all participating centers, directors reported an average, annual turnover rate of 41 percent, compared with a 15% turnover rate a decade ago. The follow-up calls revealed a staff turnover rate of 37 percent over just six months. This six-month turnover rate cannot simply be doubled to obtain an annual turnover rate because our follow-up calls were made in the fall and winter, the period when teaching staff more commonly change or leave jobs. The number of directors reporting no staff turnover in their centers plummeted between 1977 and 1988 from 40 to 7 percent (see *Chart 8*).

Chart 8
Teaching Staff Turnover: 1977-1988



(A) Source *Day Care Centers in the U.S.: A National Profile 1976-1977*. Abt Associates, Cambridge, Mass., 1978 (National Day Care Study)

(B) National Child Care Staffing Study, weighted data for comparison with the National Day Care Study

When compared with those who remained in their centers, teaching staff who left were more likely to be new to the field ($\chi^2(2)=15.34, p < .001$) and to have less specialized training. They worked in centers with lower preschool (but not infant) developmentally appropriate activity scores. Staff who left also showed less appropriate caregiving in preschool classrooms and more detachment than staff who stayed (see *Table 32*).

Table 32
Comparison of Teachers Who Left or Stayed at Six-month Follow-up

	<u>Six-month follow-up</u>		
	<u>Left</u>	<u>Stayed</u>	<u>t</u>
Number	344	582	
<u>Teacher characteristics</u>			
Formal education level	2.3	2.4	1.04
ECE level	1.4	1.6	2.27*
<u>Teacher-child interaction</u>			
<u>Appropriate caregiving:</u>			
infant/toddler	4.2	4.2	.16
preschool	4.3	4.6	3.46***
Sensitive	28.6	29.5	1.86
Harsh	14.7	15.0	.83
Detached	6.5	6.0	2.32*
<u>Child development environment</u>			
infant/toddler	3.5	3.5	.35
preschool	3.4	3.7	3.08**

Note: Level of formal education was scored as: 1 = high school or less, 2 = some college, 3 = A.A. degree, 4 = B.A./B.S. degree or more. Level of early childhood education was scored as: 0 = none, 1 = high school, 2 = vocational education, 3 = some college or A.A. degree, 4 = B.A./B.S. degree or more.

* $p < .05$ ** $p < .01$ *** $p < .001$

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We divided our sample of teaching staff into three groups: teaching staff new to the field (n=510); teaching staff new to the center but with experience in the field (n=482) and teaching staff with experience both in the field and in the center (n=313). The teachers new to the field, the replacement workers, were less well-trained than the more experienced staff (chi-square (8)=98.99, p<.001). Only four percent of the replacements had undergraduate or higher-level early childhood education training compared with 18% of the more experienced staff. The replacement workers also had less formal education (chi-square (8)=46.40, p< .001) than the more experienced teachers. Teachers new to the field were less likely to have a bachelor's or higher degree (see *Tables 33 and 34*).

Table 33
Comparison of ECE Levels and Experience of Replacement Teachers

<u>ECE level</u>	<u>Category of experience</u>		
	<u>New to field</u>	<u>New to program</u>	<u>Old to program and field</u>
None	40 (205)	31 (148)	44 (137)
High school	29 (150)	26 (126)	13 (39)
Voc./ed.	4 (20)	8 (40)	10 (32)
Some college	23 (115)	19 (90)	15 (48)
B.A./B.S. or more	4 (20)	16 (78)	18 (57)
	(510)	(482)	(313)

Note: Numbers in table are percentage of those with each category of experience (raw numbers).

Table 34
Comparison of Educational Levels and Experience of Replacement Teachers

<u>Educational level</u>	<u>Category of experience</u>		
	<u>New to field</u>	<u>New to program</u>	<u>Old to program and field</u>
High school or less	39 (208)	28 (133)	33 (103)
Some college	38 (195)	36 (174)	31 (96)
A.A. degree	4 (19)	12 (57)	13 (41)
B.A./B.S. or more	19 (94)	24 (116)	23 (71)

Note: Numbers in table are percentage of those with each category of experience (raw numbers).

These differences in teacher characteristics are reflected in differences in teacher-child interaction. Teachers new to the field were rated less sensitive ($F(2,1286) = 8.26, p < .001$; Scheffe = .05) than more experienced teachers and new preschool teachers had lower appropriate caregiving scores ($F(2,731) = 3.86, p < .05$, Scheffe = .05) than teachers more experienced in the field and the program.

While it is reassuring that the most rapid turnover is not occurring among the most qualified staff, it is troubling that replacement teachers are less well-educated and trained. There are fewer minimally-qualified staff and fewer highly-qualified staff. As the upper echelon of trained teachers diminishes over time, with the increasing turnover, children face an environment with fewer trained teachers and more minimally prepared staff who have fewer opportunities to observe appropriate interaction with children.

How the Adult Work Environment Affects Turnover.

Recruiting and retaining adequately-trained staff poses a major challenge to the child care field. Increasingly, policy makers and other concerned community members are attempting to intervene in the staffing crisis with salary enhancement and training proposals (Whitebook, Pemberton, Lombardi, Galinsky, Bellm, & Fillinger, 1988). To contribute to effective policy initiatives the Study sought to understand what aspects of the adult work environment affect turnover.

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The most important predictor of staff turnover among the adult work environment variables was staff wages (see Table 35). In centers paying lower wages, directors reported that more of their teaching staff had left in the previous 12 months. The follow-up telephone calls to the teaching staff confirmed the directors' reports: actual turnover rates were higher in centers paying lower wages. Teaching staff earning \$4 per hour or less left their jobs at twice the rate of those who earned over \$6. Close to 75 percent of those who left found better-paying jobs in early childhood education or other fields (see Chart 9). These findings further support the assumption that child care dollars spent on staff wages are also dollars well spent on creating stable environments for children.

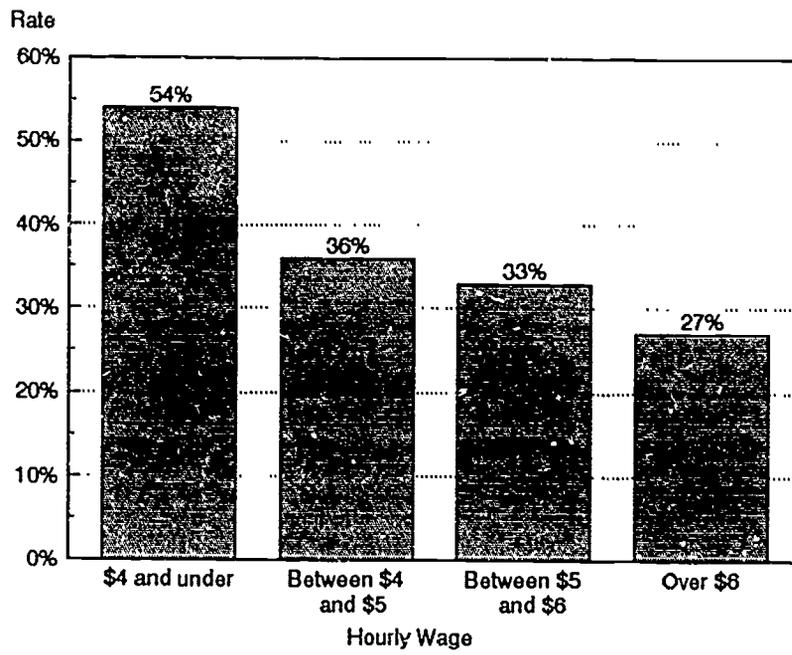
Table 35
How the Adult Work Environment Affects Turnover

Turnover	Predicted by	R	Beta	R ²	F
<u>Six-month</u>					
All teaching staff ^a	Wages	.19	-.19	.04	19.88***
Teachers	Wages	.31	-.31	.09	3.49**
Assistants	Wages	.26	-.26	.07	11.78**
<u>Twelve-month^b</u>					
All teaching staff	Wages	.38	-.38	.15	10.69**

^aMultiple regression using individual teacher as the unit of analysis. Specified model#1: Step 1: wages; Step 2: benefits (retirement, health, paid vacation, paid holiday); Step 3: working conditions (merit increase, paid breaks, written job description, cost of living increase, paid preparation time); Step 4: job satisfaction (commitment to work as a career, opportunities for advancement, salaries and benefits are fair); Step 5: percent of budget center allocates to teaching staff. All teaching staff n=519; teachers n=320, assistant teachers n=168. ^bMultiple regression using center as the unit of analysis. Specified model#1: Step 1: average teacher wages; Step 2: total benefits; Step 3: total working conditions; Step 4: percent of budget center allocates to teaching staff.

*p < .05 **p < .01 ***p < .001

Chart 9
Six-month Turnover Rates for Teaching Staff by Wages



CHAPTER 6: CHILD CARE CENTERS

Characteristics of Centers

From 1977 to 1988, average child care center enrollment rose from 49 to 84 children⁷. Accordingly, the average number of personnel per center increased from 8 to 15 teachers. For-profits constituted 41% of centers in 1977 compared with the National Child Care Staffing Study's 47% figure. For-profit centers' share of total enrollment also rose from 37% in 1977 to 51% in 1988. Although the size of the average center budget grew substantially over the decade, from \$70,254 to \$241,084, centers continued to spend approximately 70% of their budgets on personnel. While the average center had been in operation for eight years in 1977, 12 years was the reported figure in 1988.

The racial composition of enrolled children shifted in the last decade. While there were slightly more whites (67% v. 63%) and fewer blacks (21% v. 28%) in 1988, there were more non-whites from other racial groups (13% v. 9%). The ages of enrolled children also changed dramatically. In 1977, 14% were infants and toddlers (two years old or younger). In 1988, this figure was 30 percent. In the context of increasing center size and infant and toddler enrollment, the proportion of preschoolers shifted. It fell from 52 to 46 percent while the proportion of kindergartners and school-age children dropped from 35 to 23 percent.

Surprisingly, the percentage of children from single-parent families decreased during this period from 38 to 22 percent, while the number of single-parent families in the nation skyrocketed during this period. This suggests that many children of single parents are in non-center or familial child care (U.S. Department of Commerce, 1984-85, Winter). However, the proportion of families with very low incomes has not changed substantially. Thirty percent of the children enrolled in the National Day Care Study centers had families with annual incomes under \$6,000. Twenty-seven percent of the children enrolled in the NCCSS centers had families with very low annual incomes of \$10,000, roughly equivalent to \$6,000 when adjusted for inflation.

Parent fees remained the major source of revenue for child care centers, increasing slightly from 70% of total center revenues in 1977 to 77% in 1988. Accordingly, government funding as a proportion

⁷This comparison is based on the Supply Study of the National Day Care Study. (See p. 13 in measures section).

of total revenues dropped from 29 to 18 percent during the same period. Other sources of funding, including corporate and charitable contributions, have remained a trivial share of center revenues, shifting from 1% in 1977 to 5% in 1988.⁸

Child Development Environment

What is the actual range of quality existing in center-based child care? What level of quality is typical in child care centers? In this section, we provide descriptive data for measures of child care quality: developmentally appropriate activity observed in each classroom, ratios, group sizes, and staffing patterns over the course of the day as reported by center directors.⁹ In the following section, we discuss the quality of teacher-child interaction in the classrooms.

Developmentally Appropriate Activity

The average developmentally appropriate activity scores were 3.17, 3.57, and 3.56 for infant, toddler, and preschool classrooms. A score of 3 indicates "minimally adequate care" while a score of 5 indicates "good" care. This places the average classroom in the sample at a barely adequate level of quality.

In infant rooms, the developmentally appropriate activity scores ranged from 1.51 to 5.88. In toddler rooms (one and two year-olds), the scores ranged from 1.16 to 6.13. In preschool rooms, the scores ranged from 1.10 to 6.90. Because there were no significant differences among infant, toddler, and preschool classrooms in developmentally appropriate activity scores, the quality of care appeared not to vary by the age of the children.

Chart 10 presents the distribution of developmentally appropriate activity scores for each age group. For all ages, only a small percentage of classrooms fell below the scale score of 2 that indicates a potentially hazardous level of quality. However, for all ages, close to one-third or more of the classrooms fell at or below a "minimally adequate" scale score of 3 and at least two-thirds fell at or below a 4 scale score. At most, 12% of the classrooms met or exceeded the "good" scale score of 5 and

⁸These numbers do not add up to 100% due to the weighting procedure used to allow for the 1977-88 comparison.

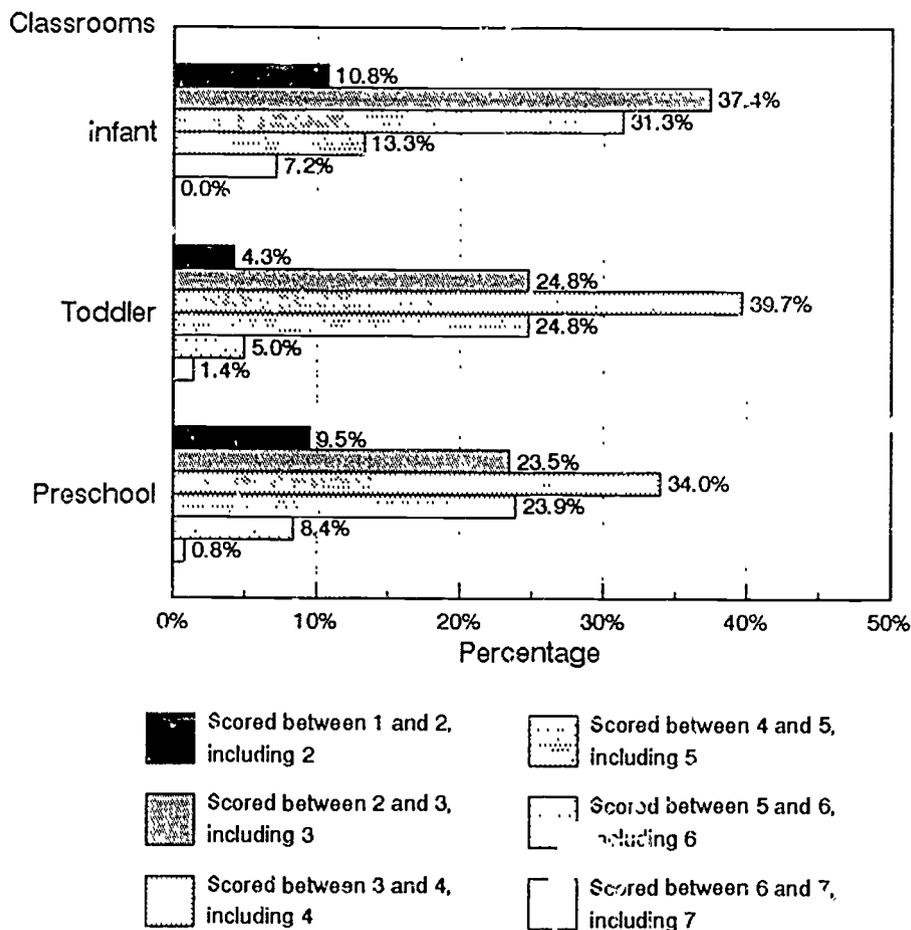
⁹Quality ratings for centers in each site of the Study are included in the five National Child Care Staffing Study site reports. (Atlanta Report, Boston Report, Detroit Report, Phoenix Report, Seattle Report. NCCSS. CCEP, 1989.)

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a very small fraction fell within the "excellent" 6-7 range.

Chart 10

Distribution of Developmentally Appropriate Activity Scores for Infant, Toddler, and Preschool Classrooms



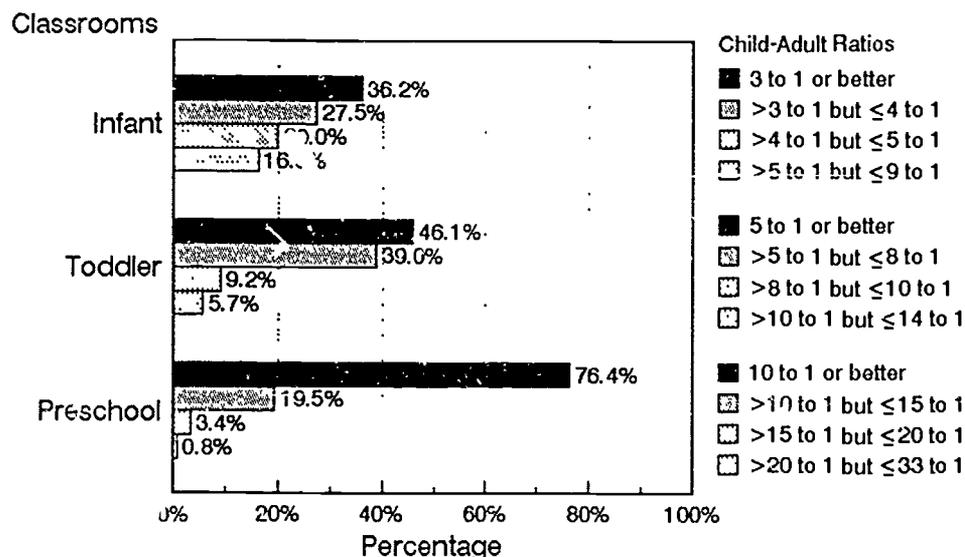
Ratios

The Federal Interagency Day Care Requirements (FIDCR) recommended child-staff ratios of 3 infants to 1 adult, 5 toddlers to 1 adult, and 10 preschoolers to 1 adult. On average, we observed ratios of 3.9 infants to 1 adult ($SD = 1.66$), 5.8 toddlers to 1 adult ($SD = 2.54$), and 8.4 preschoolers to 1 adult ($SD = 4.08$). The median ratios were 4.0, 5.5, and 7.33 for these three age groups. The typical observed ratios fell close to or within the FIDCR provisions. However, the average ratio found in preschool classrooms between 1976 and 1977 was 6.8 (median 6.6) compared with 7.79 (median of 7.25) in the

weighted NCCSS preschool classrooms.¹⁰

Furthermore, these average ratios camouflage the wide ranges that characterized child-staff ratios. They ranged from 9 to 1.5 in infant rooms, from 14 to 1 in toddler rooms, and from 33 to 1.57 in preschool rooms. As seen in *Chart 11*, while we observed 3:1 ratios in 36.2% of the infant classrooms, 10% of the classrooms had ratios exceeding 5:1. While 46% of the toddler classrooms had ratios of 5:1 or better, 14.9% had 8:1 or higher. Preschool classrooms fared better: 76% had ratios of 10:1 or better and only 4.2% had 15:1 or higher ratios.

Chart 11:
Distribution of Ratios in Infant, Toddler, and Preschool Classrooms



Director-reported ratios correlated moderately with observed ratios (see *Table 36*). The highest correlations were between observed ratios and director-reported ratios between 9 a.m. and 3 p.m. This is not surprising because directors also reported that child-adult ratios within an age group varied with the time of day. There were more children per adult between 9 a.m. and 5 p.m. than in the early morning or late afternoon (see *Table 37*).

¹⁰As part of the National Day Care Study, in-depth observations of group sizes, ratios, and staff characteristics were made in preschool classrooms in 57 centers in Atlanta, Detroit, and Seattle (Ruopp, Travers, Glantz, & Coelen, 1979). We compared our preschool ratios and group sizes in the 136 centers in these three sites with the corresponding data for the 57 centers observed between 1976 and 1977. For these analyses, our sample was weighted to reflect the distribution of for-profit and non-profit centers in this portion of the National Day Care Study.

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Table 36
Relations Between Reported and Observed Child-Adult Ratios^a

	<u>Observed ratios</u>			
	<u>Infant</u>	<u>Young toddler</u>	<u>Older toddler</u>	<u>Preschool</u>
Reported ratios of rooms	85	78	73	313
Early morning	.49***	.25*	.51**	.27**
Midday	.63***	.47**	.59**	.47***
Late afternoon	.33**	.36**	.48**	.36***

^a Pearson Product Moment Correlations

* $p < .05$ ** $p < .01$ *** $p < .001$

In mixed-age classrooms, the number of children cared for by each adult was always larger than in single-age classrooms (see Table 37). This is particularly noteworthy since most state licensing requirements set the child-adult ratio to the youngest rather than the oldest children in the class. Centers appear to be disregarding this regulation.

Table 37
Child-Adult Ratios and Group Size Reported by Directors for All Rooms in All Centers^a

	<u>Early morning</u>		<u>9 a.m. to 5 p.m.</u>		<u>Late afternoon</u>		<u>F for time mixed of day v. single</u>	
	Mean	Range	Mean	Range	Mean	Range		
<u>Ratios</u>								
<u>Infants</u>								
single-age	3.2	5-8	4.1	1.7-8	3.2	1-9	5.15**	6.17**
mixed-age	6.5	.8-20	3.9	1.8-7	7.4	3-24		
<u>Toddlers</u>								
single-age	4.5	.7-15	5.9	2.6-15	4.8	.4-15	13.41**	7.42**
mixed-age	8.0	.3-33	7.5	1.8-39	9.9	1-30		
<u>Preschoolers</u>								
single-age	7.6	.2-29	9.0	1-22	7.9	.8-24	15.24**	5.03**
mixed-age	8.5	2-22	12.0	3-39	12.0	.9-45		

(table continues)

	<u>Early morning</u>		<u>9 a.m. to 5 p.m.</u>		<u>Late afternoon</u>		<u>F for</u> <u>time mixed</u> <u>of day v. single</u>	
	Mean	Range	Mean	Range	Mean	Range		
<u>Group size</u>								
<u>Infants</u>								
single-age	4.7	1-20	8.5	4-24	4.9	1-12	.78	7.98**
mixed-age	10.3	1-30	9.6	2-15	9.4	2-24		
<u>Toddlers</u>								
single-age	6.6	2-41	10.9	4-41	6.4	1-41	10.07**	11.64**
mixed-age	12.3	1-33	17.1	2-49	12.4	2-38		
<u>Preschool</u>								
single-age	10.8	1-45	16.6	4-45	10.2	1-45	6.30**	16.05**
mixed-age	13.3	3-45	22.1	3-45	15.1	2-45		

^aTwo-way analysis of variance with repeated measures on one factor (time of day)

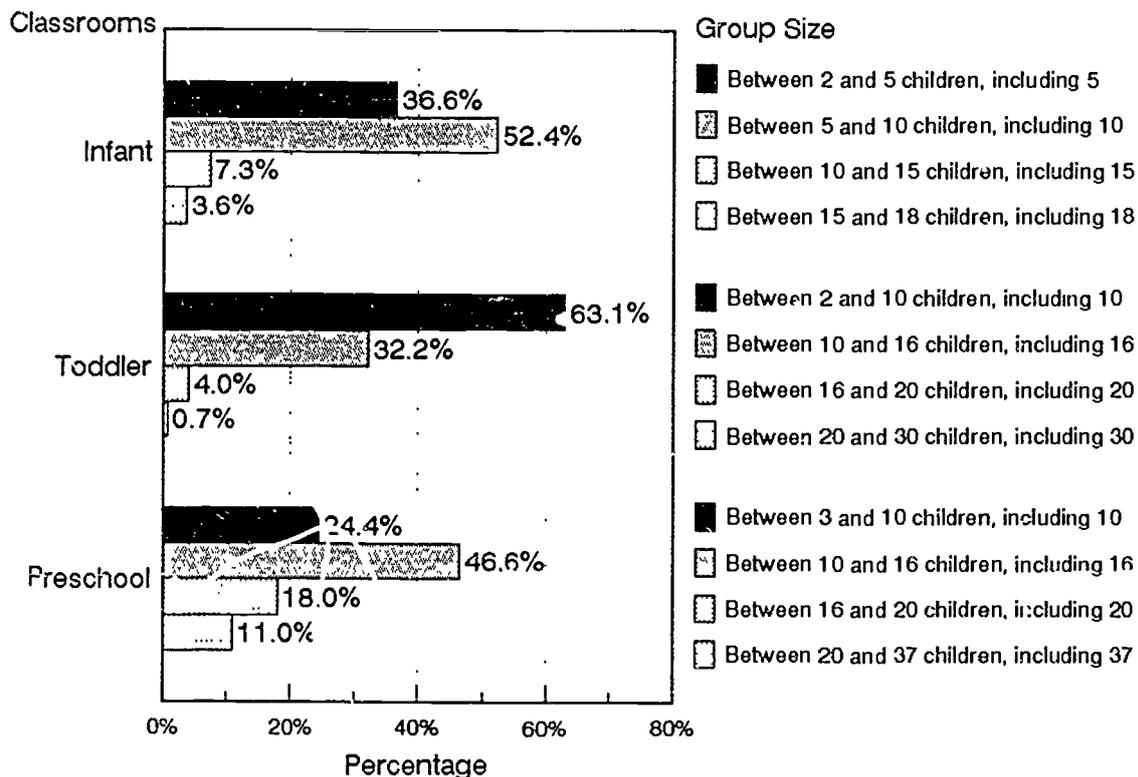
* $p < .05$ ** $p < .01$ *** $p < .001$

Group Size

The Federal Interagency Day Care Requirements (FIDCR) recommended group sizes of no more than 10 infants to two-and-a-half-year olds, 16 two-and-a-half to four year-olds, and 20 four to six year-olds. On average, we observed group sizes of 7.1 for infants under one year old ($SD = 3.31$), 9.6 for toddlers (one and two year-olds) ($SD = 3.94$), and 14.2 for preschoolers ($SD = 5.47$). The median group sizes were 7, 9, and 13 for these three age groups. Observed group sizes fell well within the FIDCR provisions. As seen in *Chart 12*, 89% of the infant classrooms, 63% of the toddler classrooms, and 71% of the preschool classrooms coincided with the FIDCR provisions. The National Day Care Study average group size in preschool classrooms was 17.6 (median of 15.9) compared with 14.17 (median of 13) in the 1988 weighted preschool classrooms. Group sizes have actually dropped somewhat over time. The group sizes varied as widely as the ratios: 2 to 18 in infant rooms, 2 to 30 in toddler rooms, and 3 to 37 in preschool rooms. But a tiny fraction of the classrooms were characterized by extremely high group sizes (see *Chart 12*). Group size also increased with the age of the children ($F(3,510) = 52.09, p < .001$).

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Chart 12:
Distribution of Group Sizes in Infant, Toddler, and Preschool Classrooms



Staffing Patterns

Children we observed experienced substantial fluctuation in the number of staff caring for them during the course of a day. However, centers were more likely to have only one teacher in a room in the early morning and late afternoon than between 9 a.m. and 5 p.m. because fewer children were at the center at the beginning and end of the day (see Table 38). When examined only between 9 a.m. and 5 p.m., one teacher was alone with the children in over half of all classrooms. Most centers arranged for overlapping shifts so that staff could exchange daily information about individual children. No overlap was planned in 15% of the classrooms (see Table 39).

Table 38
Staffing Patterns Reported by Directors for All Rooms in All Centers^a

	<u>Early morning</u>	<u>9 a.m. to 5 p.m.</u>	<u>Late afternoon</u>	<u>F for time of day mixed v. single</u>	
Percentage of rooms with only one adult ^b					
<u>Infant</u>					
Single-age	77.0%	56.4%	71.6%	14.30**	12.71**
Mixed-age	98.7%	50.0%	85.1%		
<u>Toddler</u>					
Single-age	70.9%	55.4%	76.4%	9.55**	1.85
Mixed-age	73.0%	46.3%	82.4%		
<u>Preschool</u>					
Single-age	82.4%	56.5%	81.1%	18.05**	2.63
Mixed-age	74.5%	50.6%	76.7%		

^aTwo-way analysis of variance with repeated measures on one factor (time of day), (n of rooms = 1443, n for analysis = 227) ^bTests of significance based on raw number of adults in room

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 39
Percentage of Centers with Overlapping Staff Shifts

<u>Infant</u>	
Same-age	83.3%
Mixed-age	78.0%
<u>Toddler</u>	
Same-age	85.8%
Mixed-age	72.3%
<u>Preschool</u>	
Same-age	86.9%
Mixed-age	69.5%

Grouping of children

With respect to the children, most centers used "accordion" grouping (see Table 40). In accordion grouping, children change classrooms throughout the day. Children commonly started the day in one large group, broke into smaller groups between 9 a.m. and 5 p.m. (sometimes changing groups more

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than once), and formed a large group in the late afternoon when preparing to leave. Centers benefited by maintaining a smaller teaching staff during the hours when there were fewer children. However, children can be disadvantaged by the confusion of shifting rooms and adults throughout their day.

Table 40
Use of Accordion Grouping of Children^a

	Never	Throughout day	Beginning and/or end of day only
Infant	52.8	13.2	34.0
Toddler	36.7	25.0	38.3
Preschool	38.5	34.3	27.2

^aNumbers on table are percents; chi-square on raw numbers; chi-square (4) = 10.43, p = .001; centers with infants n = 119; centers with toddlers n = 210; centers with preschoolers n = 227

Between 9 a.m. and 5 p.m., most children were cared for in same-age groups with the second most common arrangement being adjacent-age groups (e.g., infant/toddler). Multi-age groupings did not occur during this period (see *Table 41*). In the early morning and late afternoon, children were more likely to be cared for in mixed-age groups.

Table 41
Directors' Reports of Grouping of Children in Centers^a

	Single-age	Mixed-age Two adjacent ages (e.g., infant/toddler)	Multi-age	Chi-square	
				Age mix	Time of day
<u>Rooms with infants</u>					
early morning	75.4	15.9	8.7	5.84**	1.71
midday	85.3	14.7	0		
end of day	69.9	20.2	9.9		
<u>Rooms with toddlers</u>					
early morning	65.5	25.5	9.0	8.34**	4.14*
midday	84.5	15.5	0		
end of day	62.3	25.3	12.4		
<u>Rooms with preschoolers</u>					
early morning	71.7	21.8	6.5	7.23**	5.13**
midday	89.1	11.9	0		
end of day	70.9	24.2	4.9		

^aNumbers in table are percentages of centers; chi-square on raw numbers; centers with infants n = 119; centers with toddlers n = 210; centers with preschoolers n = 227. Each line is a 3 x 2 chi-square.

*p < .05 **p < .01 ***p < .001

Relations Among Measures of the Child Development Environment

The empirical literature on quality in center-based child care has revealed that, among the measures discussed above, ratios and group size are important predictors of overall program quality and child outcomes (Phillips & Howes, 1987; Ruopp et al. 1979). It has also been shown that "good things go together" in child care. Do our data confirm these findings?

Centers scoring higher on one measure of the child development environment tended to score higher on other measures. This was true of developmentally appropriate activity, ratios, staffing patterns, and groupings of children but not for group size. All classrooms had higher ratings for developmentally appropriate activity if they had better child-adult ratios (see Table 42). There was no relation between developmentally appropriate activity and group size.

Table 42

Relations Among Measures of Child Development Environment: Part 1

	Developmentally appropriate activity	Group size
Infant (n = 85)		
observed ratio	.48***	.44**
observed group size	.05	-
Young toddler (n = 78)		
observed ratio	.17*	.39**
observed group size	.15	-
Older toddler (n = 73)		
observed ratio	.25**	.34**
observed group size	.05	-
Preschoolers (n = 313)		
observed ratio	.33**	.40***
observed group size	.05	-

*p < .05 **p < .01 ***p < .001

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Rooms staffed with only one teacher had lower (worse) child-adult ratios than rooms staffed with two teachers (see *Table 43*). Between 9 a.m. and 5 p.m., an infant teacher working alone cared for 3 to 8 infants (mean=3.4); a toddler teacher, working alone, cared for 3 to 14 (mean=7.3) and a preschool teacher, working alone, cared for 6 to 22 children (mean=10.5).

Table 43
Different Child-Adult Ratios Associated with Different Staffing Patterns^a

	<u>Early morning</u>		<u>Midday</u>		<u>Late afternoon</u>		<u>F for staffing pattern</u>
	<u>M</u>	<u>SD</u>	<u>Mean</u>	<u>SD</u>	<u>Mean</u>	<u>SD</u>	
<u>Infants</u>							
two adults	3.0	1.9	3.7	1.9	3.2	1.6	7.52**
one teacher or teacher/ director	4.5	1.5	3.4	1.6	3.5	2.1	
one assistant or aide	-		-		-		
<u>Toddlers</u>							
two adults	4.2	2.6	5.0	1.8	4.4	2.9	12.71***
one teacher or teacher/ director	5.2	2.7	6.9	2.5	5.0	2.5	
one assistant or aide	5.8	3.9	8.5	6.5	6.3	5.9	
<u>Preschoolers</u>							
two adults	6.8	4.3	7.7	2.5	6.9	4.0	12.76***
one teacher or teacher/ director	8.2	3.8	10.3	4.1	8.7	4.5	
one assistant or aide	9.8	3.4	10.7	3.7	12.5	3.6	

^aTwo-way analysis of variance with repeated measures on one factor (time of day)

* $p < .05$ ** $p < .01$ *** $p < .001$

Centers with a predominant staffing pattern of one teacher per room between 9 a.m. and 5 p.m. were less likely to overlap staff but more likely to use floaters (teachers not assigned to a particular room) and to use accordion grouping of children. Centers not overlapping staff were more likely to use floaters and accordion grouping than centers that did overlap staff. Centers using floaters were also likely to use accordion grouping (see *Table 44*).

Table 44
Relations Among Measures of Child Development Environment: Part II

Percentage	One person in room		Chi-square
	No	Yes	
Accordion grouping yes	50	79	4.21*
Used floaters yes	19	60	7.60***
Overlapped staff yes	100	68	5.52**
	Overlapped staff		
	No	Yes	
Accordion grouping yes	93	53	6.25**
Used floaters yes	88	67	1.83
	Used floaters		
	No	Yes	
Accordion grouping yes	44	69	6.88**

Note: Numbers in table represent number of centers; each line is a 2 x 2 chi-square.

* $p < .05$ ** $p < .01$ *** $p < .001$

Teacher-Child Interaction

How do child care staff behave toward children in the average child care center? In this section, we provide descriptive data for two measures of teacher-child interaction: the level of appropriate caregiving observed in each classroom and the quality of caregiving as observed with the Arnett measure from which scores for sensitivity, detachment, and harshness were derived.

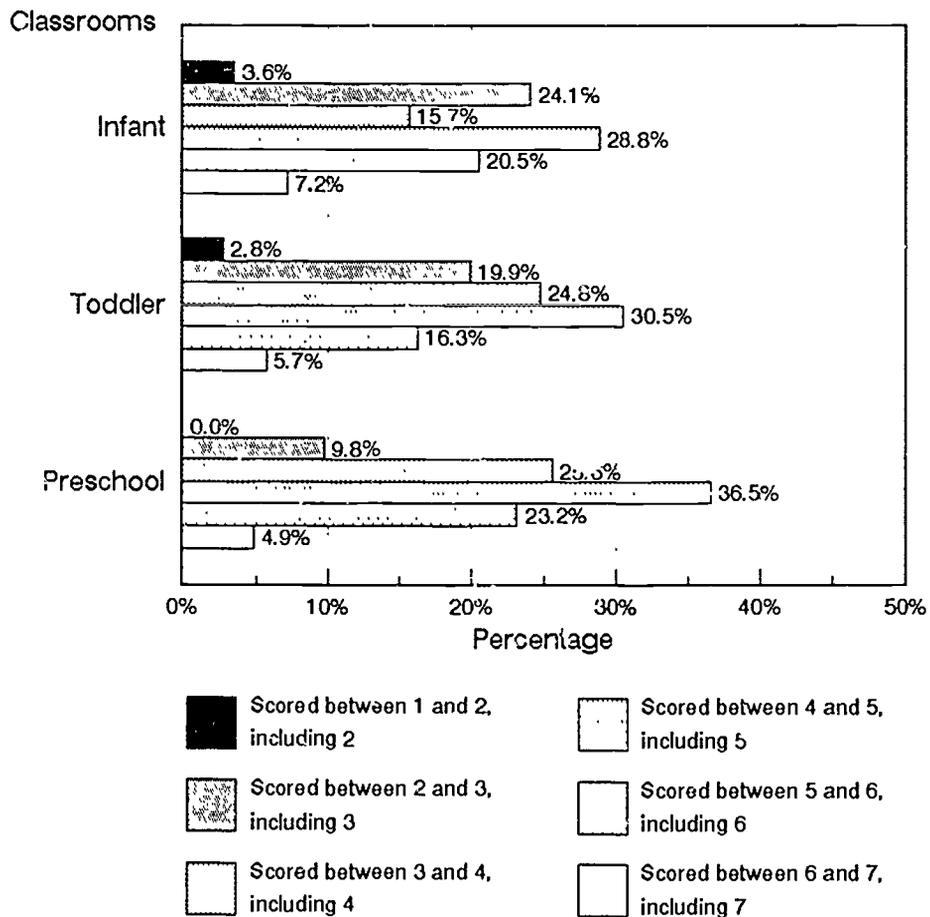
Appropriate Caregiving

The average appropriate caregiving scores were 4.15 (SD = 1.33), 4.10 (SD = 1.21), and 4.39 (SD = 1.01) for infant, toddler, and preschool classrooms respectively. This places the average caregiving in classrooms for all ages of children below the scale score of 5 that indicates "good" care.

In infant rooms, the caregiving scores ranged from 1.54 to 6.92. In toddler rooms (one and two year-olds), the scores ranged from 1.08 to 6.92. In preschool rooms, the scores ranged from 2.00 to 7.00. Since there were no significant differences between infant, toddler, and preschool caregiving scores, the quality of care did not appear to vary by children's ages.

Chart 13 presents the distribution of caregiving scores for each age group. For all ages, only a small percentage of classrooms fell below a scale score of 2 that indicates a potentially hazardous level of quality. None of the preschool rooms fell below a score of 2; however, 27.7% of the infant classrooms and 22.7% of the toddler rooms fell at or below the minimal level of quality score of 3. The preschool rooms fared better; only 9.8% fell at or below a minimal level of quality. At the other end of the spectrum, 27.7% of the infant rooms, 22% of the toddler rooms, and 28.1% of the preschool rooms met or exceeded the "good" scale score of 5. Only a very small fraction, however, fell within the 6-7 excellent range.

Chart 13:
Distribution of Appropriate Caregiving Scores for Infant, Toddler, and Preschool Classrooms



Relations Among Measures of Teacher Behavior

Our ratings and measures of teacher behavior tended to be consistent. Teachers in rooms rated high in appropriate caregiving were rated high in sensitivity, low in harshness, and low in detachment. In Atlanta, we recorded teacher behaviors with our Study children. Children who received high levels of adult engagement were cared for in rooms rated high in appropriate caregiving. Teachers rated high in sensitivity and low in harshness provided high levels of engagement for children (see *Table 45*).

National Child Care Staffing Study

Table 45
Relations Among Measures of Teacher Behaviors^a

	<u>Individual ratings of teachers</u>		
	<u>Sensitive</u>	<u>Harsh</u>	<u>Detached</u>
<u>Appropriate caregiving rated at the room level</u>			
Infant/toddler	.54***	-.29***	-.40***
Preschool	.49***	-.42***	-.18***
<u>Individual ratings of teachers in classrooms</u>			
Sensitive	-	-.37***	-.67***
Harsh	-	-	-.19***
<u>Observed behaviors of teachers with children in Atlanta</u>			
Percentage of time ignored child	.01	.15**	.27**
non-responsive	.04	.01	.34**
responsive	.05	-.20**	.07
response was intense	.06	-.20**	.08
Mean level of adult engagement	.25**	-.23***	-.04

	<u>Appropriate caregiving rated at the room level</u>	
	<u>Infant/toddler</u>	<u>Preschool</u>
<u>Observed behaviors of teachers with children in Atlanta</u>		
Percentage of time ignored child	-.32***	-.37***
non-responsive	.03	-.26**
responsive	.27**	.20**
response was intense	.29**	.20**
Mean level of adult engagement	.19*	.19*

^a Pearson Product Moment Correlations

* $p < .05$ ** $p < .01$ *** $p < .001$

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ABSTRACT

This national study explored the effects of teachers and their working conditions on the caliber of center-based child care in the United States. Study goals were to: (1) compare center-based child care services in 1988 with those of 1977; (2) examine relations among child care staff characteristics, adult work environments, and quality of child care; and (3) investigate differences in child care quality, child care staff, and adult work environments in centers that varied with respect to standards, accreditation status, auspices, and families served. Participants were 227 centers in five metropolitan areas: Atlanta (Georgia), Boston (Massachusetts), Detroit (Michigan), Phoenix (Arizona), and Seattle (Washington). Classroom observations and interviews with center directors and staff provided data on center characteristics, program quality, and staff qualifications, commitment, and compensation. In addition, child assessments were conducted in Atlanta in an effort to examine effects of varying program and staff attributes on children. Results are reported and recommendations offered. It is concluded that the study raises serious concerns about the quality of services many American children receive. Findings also indicate how services can be improved if the necessary resources are devoted to accomplishing this. (RH)

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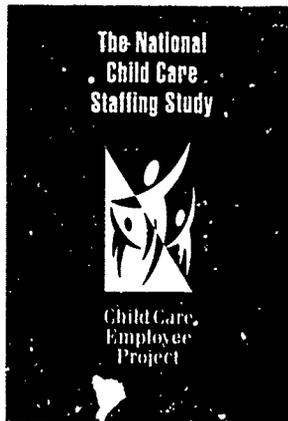
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**WHO CARES?
CHILD CARE TEACHERS AND THE
QUALITY OF CARE IN AMERICA**

**EXECUTIVE SUMMARY
NATIONAL CHILD CARE STAFFING STUDY**

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The National Child Care Staffing Study was coordinated by the staff of the Child Care Employee Project and funded by a consortium of foundations including the Ford Foundation, the Foundation for Child Development, the A. L. Mailman Family Foundation and the Spunk Fund.

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A shortage of trained child care teachers indicates the existing child care delivery system. *Who Cares? Child Care Teachers and the Quality of Care in America* is the report of the National Child Care Staffing Study, the most comprehensive examination of center-based child care in the United States in over a decade. It reveals that inadequate compensation is fueling a rapidly increasing and damaging exodus of trained personnel from our nation's child care centers. By failing to meet the needs of the adults who work in child care, we are threatening not only their well-being but that of the children in their care. These findings call for a national child care policy that provides increased compensation, improved work environments, and expanded educational opportunities for child care teachers.

INTRODUCTION

As the twentieth century draws to a close, public debate about child care in America has shifted. No longer is the question, "Should resources be allocated to these services?" Rather, discussion now focuses on what form support for child care will take. To date, pressures to expand the supply yet contain the cost to parents have shaped our public policies about child care. Financial considerations have consistently shortchanged efforts to improve child care services. Nevertheless, the supply of child care remains precarious and the fees for services lie beyond the means of many families.

Inattention to quality has had its costs. Child care centers throughout the country report difficulty in recruiting and retaining adequately trained staff. Nearly half of all child care teachers leave their jobs each year, many to seek better-paying jobs. As the nation deliberates on what is best for its children, the question of who will care for them grows increasingly critical.

A commitment to pay for quality requires an understanding of the ingredients demanded by quality. It is widely accepted that a developmentally appropriate environment—one with well-trained and consistent staff in suf-

ficient numbers, moderately-sized groupings of children, and proper equipment and activities—will lead to good care. But the fact is that child care staff are leaving their jobs at a rate almost three times higher than a decade ago. This high rate of turnover forces us to examine child care as a work environment for adults, and not just as a learning environment for children. In all work environments—from factories to hospitals—working conditions affect the quality of products produced or services provided. In child care, children's experience is directly linked to the well-being of their care givers. Good quality care requires an environment that values adults as well as children.

As a nation we are reluctant to acknowledge child care settings as a work environment for adults, let alone commit resources to improving them. Even though many Americans recognize that child care teachers are underpaid,¹ outdated attitudes about women's work and the family obscure our view of teachers' economic needs and the demands of their work. If a job in child care is seen as an extension of women's familial role of rearing children, professional preparation and adequate compensation seem unnecessary. Attributing child care skills to women's biological proclivities implies that teachers' jobs are more an avocation than an economic necessity. While such assumptions contradict the economic and educational realities facing those who teach in child care centers, they provide an unspoken rationale for depressing child care wages and containing costs.

Faced with a burgeoning demand for services, a pool of consumers with limited ability or inclination to pay the full cost of care, and restricted government and corporate funds, our nation has implicitly adopted a child care policy which relies upon unseen subsidies provided by child care teachers through their low wages. But as we are painfully realizing, this policy forms a shaky foundation upon which to build a structure to house and nurture our children while their parents earn a living.

HIGHLIGHTS OF MAJOR FINDINGS

Classroom observations, child assessments and interviews with center directors and teaching staff in 227 child care centers in five U.S. metropolitan areas provided the following information about child care teaching staff and the quality of care. Teaching staff includes all staff who provide direct care to children.

- **The education of child care teaching staff and the arrangement of their work environment are essential determinants of the quality of services children receive.**
 - Teaching staff provided more sensitive and appropriate caregiving if they completed more years of formal education, received early childhood training at the college level, earned higher wages and better benefits, and worked in centers devoting a higher percentage of the operating budget to teaching personnel.
- **The most important predictor of the quality of care children receive, among the adult work environment variables, is staff wages.**
 - The quality of services provided by most centers was rated as barely adequate. Better quality centers had
 - higher wages
 - better adult work environments
 - lower teaching staff turnover
 - better educated and trained staff
 - more teachers caring for fewer children
 - Better quality centers were more likely to be operated on a non-profit basis, to be accredited by the National Association for the Education of Young Children, to be located in states with higher quality standards and to meet adult-child ratios, group size, and staff training provisions contained in the 1980 Federal Interagency Day Care Requirements
- **Despite having higher levels of formal education than the average American worker, child care teaching staff earn abysmally low wages.**

- This predominantly female work force earns an average hourly wage of \$5.35
- In the last decade, child care staff wages, when adjusted for inflation, have decreased more than 20%
- Child care teaching staff earn less than half as much as comparably educated women and less than one-third as much as comparably educated men in the civilian labor force
- **Staff turnover has nearly tripled in the last decade, jumping from 15% in 1977 to 41% in 1988.**
 - The most important determinant of staff turnover, among the adult work environment variables, was staff wages
 - Teaching staff earning the lowest wages are twice as likely to leave their jobs as those earning the highest wages.
- **Children attending lower-quality centers and centers with more staff turnover were less competent in language and social development.**
 - Low- and high-income children were more likely than middle-income children to attend centers providing higher quality care.
- **Compared with a decade ago, child care centers in the United States receive fewer governmental funds, are more likely to be operated on a for-profit basis, and care for a larger number of infants.**

(For a fuller discussion of the findings, see p. 8)

Improving the quality of center-based child care and addressing the staffing crisis demands the commitment of more public and private resources. The National Child Care Staffing Study findings suggest the following recommendations:

1. Raise child care teaching staff salaries as a means of recruiting and retaining a qualified child care work force
2. Promote formal education and training opportunities for child care teaching staff to improve their ability to interact effectively with children and to create developmentally appropriate environments.
3. Adopt state and federal standards for adult-child

ratios, and staff education, training, and compensation in order to raise the floor of quality in America's child care centers.

4. Develop industry standards for the adult work environment to minimize the disparities in quality between types of child care programs.
5. Promote public education about the importance of adequately trained and compensated teaching staff in child care programs in order to secure support for the full cost of care.

STUDY DESCRIPTION

PURPOSE AND GOALS

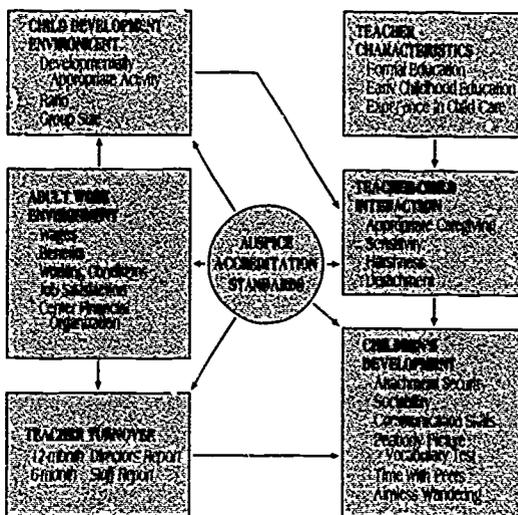
The National Child Care Staffing Study (NCCSS) explored how teachers and their working conditions affect the caliber of center-based child care available in the United States today. To begin our investigation, we identified the aspects of child care represented in *Figure 1*.

Our purpose was to describe each of the areas and examine the relations among them. Our experiences in child care and previous research suggested the pathways between these components of center-based care. This investigation targeted three major goals:

Goal #1. To examine relations among child care staff characteristics, adult work environments, and the quality of child care provided for children and families in center-based care.

Previous research suggests that if the ratio and group size did not rise above certain levels and if staff were trained in early childhood education, appropriate interactions between children and adults occurred, and, in turn, positive developmental outcomes for children were found. Thus, we expected that teachers with more professional preparation would be more likely to engage children in sensitive and appropriate interactions. We also hypothesized that teachers who taught in environments arranged to optimize child development would be more sensitive and appropriate with the children. We anticipated that children who participated in more sensitive and appropri-

GUIDE TO THE NATIONAL CHILD CARE STAFFING STUDY



NOTE: The following analysis plan was used to test the model. Within each area (e.g., teacher characteristics), we used multivariate analyses of variance to compare centers with different auspices, credentials, with EDCR provisions, accreditation, and family income. We used multiple regression techniques to test relations indicated by arrows on the diagram and to test the relative contributions of auspice, correspondence with regulations, accreditation, and percentage of governmental funding for explanation of variance within each domain. All findings reported in this text are statistically significant.

ate interaction with their teachers would be more socially and emotionally competent.

But we also wanted to extend this understanding of quality in light of the staffing crisis. We wanted to learn how the adult work environment affects the quality of care. We hypothesized that teachers who taught in child care centers with better work environments (particularly better compensation and working conditions) would be more satisfied with and committed to their careers, less likely to leave, and more likely to provide an appropriate child development environment for the children. We expected that children in centers with lower staff turnover would have more positive child care experiences.

Goal #2. To examine differences in child care quality, child care staff, and adult work environments in centers that varied with respect to standards, accreditation status, auspice, and the families served.

We hoped our investigation would shed light on the efficacy of child care standards, the pros and cons of various types of center care, and variation in services available to children from different family incomes. There are currently no federal regulations with which centers are required to comply, and state standards vary dramatically. But in the past decade, two bodies of guidance—the Federal Interagency Day Care Requirements (FIDCR)² and the National Association for the Education of Young Children (NAEYC) Center Accreditation Project³—have been developed which reflect the most widely respected expert judgment about child care settings. In the absence of mandatory regulations, the FIDCR and the NAEYC provide the best voluntary standards by which to explore the relationship between quality and regulation. Thus, we compared the quality of accredited centers with the quality of non-accredited centers, and the quality of those centers meeting selected FIDCR provisions with those that met none. Additionally, we compared the quality of centers in five states which each have very different child care regulations.

To examine how center type affects child care quality, teaching staff, and adult work environments, we compared child care centers operating under four different auspices: (1) Non-profit, non-church-run, (2) Non-profit, church-run, including synagogues, (3) For-profit chains, centers that are one of several operated by a single owner on a local or national basis, and (4) Independent, for-profit.

While parents are responsible for selecting child care, their choices are constrained by finances. We compared child care quality, teaching staff, and adult work environments of centers serving families from different socioeconomic backgrounds (high, middle and low-income) in order to better understand which centers serve which families and the variation in quality.

Goal #3. To compare center-based child care services in 1988 with those provided in 1977

In order to identify trends in center-based care over the last decade, we compared our findings to those of the National Day Care Supply Study conducted by Abt Associates in 1977.⁴

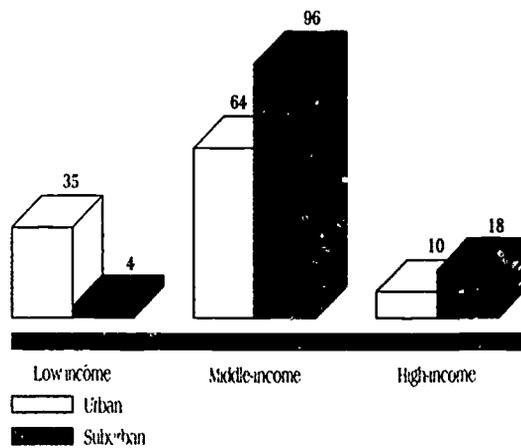
METHODS

The National Child Care Staffing Study examined the quality of care in 227 child care centers in five metropolitan areas in the United States—Atlanta, Boston, Detroit, Phoenix, and Seattle. In contrast to the 1977 National Day Care Supply Study that surveyed child care centers in every state by phone, the NCCSS examined extensively care in these selected communities which represent the diversity of center-based care throughout the country. We began collecting data in February 1988 and finished in August 1988. Classroom observations and interviews with center directors and staff provided data on center characteristics, program quality and staff qualifications, commitment, and compensation. In addition, in Atlanta, child assessments were conducted to examine the effects of varying program and staff attributes on children.

THE SAMPLE

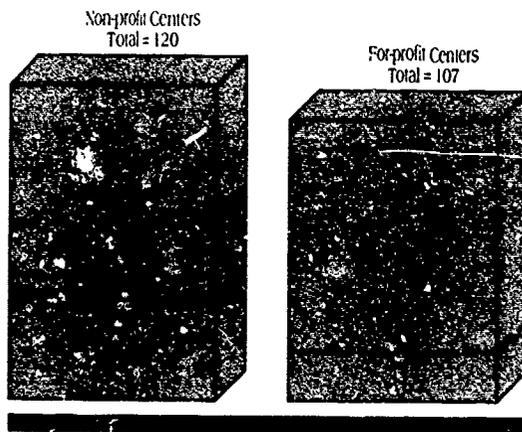
We used a stratified random sampling strategy to generate a sample of child care centers that matched the proportion of licensed centers serving low-, middle-, and high-income families in urban and suburban neighborhoods in each Study site.⁵

FINAL SAMPLE OF PARTICIPATING CENTERS
(Based on income of families served)



Sixtyone percent of all eligible centers asked to be involved in the Study agreed to participate. Refusal rates were higher among those centers in middle-income (42% refused) and high-income (38% refused) census tracts, than among those in low-income (23% refused) tracts. No differences in participation rates characterized urban and suburban centers. Centers were more likely to agree to participate if their legal status was non-profit (21% refused) rather than for-profit (39% of independent for-profits and 42% of chains refused).

SAMPLE DESCRIPTION AUPSPICE



Non-profit Centers

Total = 120
Community-based = 53
Business or hospital = 19
University = 6
Public school = 3
Parent cooperative = 2
Church run = 37

For-profit Centers

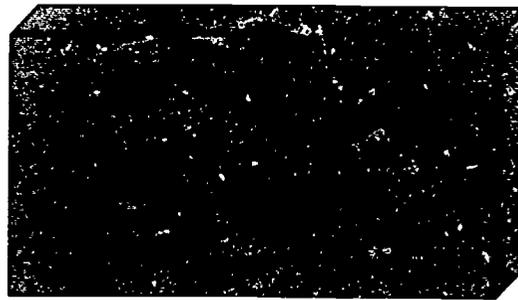
Total = 107
Independently operated = 89
Part of local or national chain = 18

Telephone screening interviews with all center directors revealed that those who agreed to participate reported higher (i.e., better) staff-child ratios in their centers than did the directors who refused. This suggests that the final sample of 227 centers may, on average, consist of higher-quality centers than in the eligible population as a whole.

In each center, three classrooms were randomly selected for observation, one each from among all infant, tod-

dler, and preschool classrooms. Only two classrooms were observed in some centers that did not enroll infants. Where possible, mixed-age classrooms were included to provide three classrooms per center.

CLASSROOMS OBSERVED BY AGE OF CHILDREN



Number after description indicates number of classrooms observed.

We randomly chose approximately two staff members from each participating classroom to interview and observe. In this report, "Teachers" refers to teachers and teacher/directors. "Assistants" refers to assistant teachers and aides. Sixty-six percent (865) of the final sample of 1,309 teaching staff members were teachers (805 teachers and 60 teacher/directors) and 34% (444) were assistant teachers (286 assistant teachers and 158 aides).

Two children, a girl and a boy, were randomly selected for assessment from each target classroom in Atlanta. Two hundred and sixty children constituted the child sample: 53 infants, 97 toddlers and 110 preschoolers.

THE MEASURES

The complexity of the investigation required a varied approach to collecting data. On average, the research team in each site, consisting of trained observers and interviewers, spent three days in each center.

Quality Observations

The quality measures consisted of observations of classroom structure, overall quality, and interactions between the teaching staff and children.

Overall quality was assessed with the Early Childhood

Environment Rating Scale⁶ for each observed preschool classroom and the **Infant-Toddler Environment Rating Scale**⁷ for each of the observed infant and toddler classrooms. These scales provide a comprehensive assessment of the day-to-day quality of care provided to children. Individual items can range from a low of 1 to a high of 7. From a factor analysis of the scale items derived two subscales. (1) *Developmentally Appropriate Activity* (e.g., materials, schedule, and activities). (2) *Appropriate Caregiving* (e.g., supervision, adult-child interactions, and discipline).

Researchers recorded *Ratios and Group Size* at regular intervals during a two-hour observational period per classroom. Hour-by-hour staffing patterns in every center classroom (including those that were observed) were obtained through interviews with directors.

We observed staff-child interaction in each classroom using a scale of **Staff Sensitivity**,⁸ to derive scores for *Sensitivity* (e.g., warm, attentive, engaged), *Harshness* (e.g., critical, threatens children, punitive) and *Detachment* (e.g., low levels of interaction, interest and supervision). Scores range from routine caregiving (e.g., touching without any verbal interaction) to intense caregiving (e.g., engaging the child in conversation, playing with an infant while changing diapers).

Director and Staff Interviews

In interviews about structural aspects of the program, including limited budget information and staff characteristics, each director provided information about the teaching staff's demographic and educational backgrounds, compensation, working conditions and turnover. Directors also provided their estimates of the socioeconomic status (low-, middle- and high-income) of all children enrolled in the center.

The six staff members from each of the observed classrooms participated in an individual interview consisting of seven sections: personal background, child care experience, wages and benefits, other jobs, educational background, professional satisfaction and recommenda-

tions for improving the child care profession. Six months after the initial staff interview (August 1988 - February 1989), we reached 71% of the staff by phone to obtain data on actual turnover rates.

Child Assessments

We assessed children's development in several ways. The child's security of attachment to adult care givers and sociability with adults and peers were measured using the *Waters and Deane Attachment Q-Set*⁹ and the *Howes Peer Play Scale*.¹⁰ Teachers rated communication skills using the *Feagans & Farran Adaptive Language Inventory*.¹¹ To assess preschool children's language development, we administered the *Peabody Picture Vocabulary Test*.¹²

FINDINGS

CHILD CARE TEACHERS

Who works as child care teachers and what are the characteristics of individual teachers that promote effective caregiving? The following picture emerged from our findings.

DEMOGRAPHIC CHARACTERISTICS

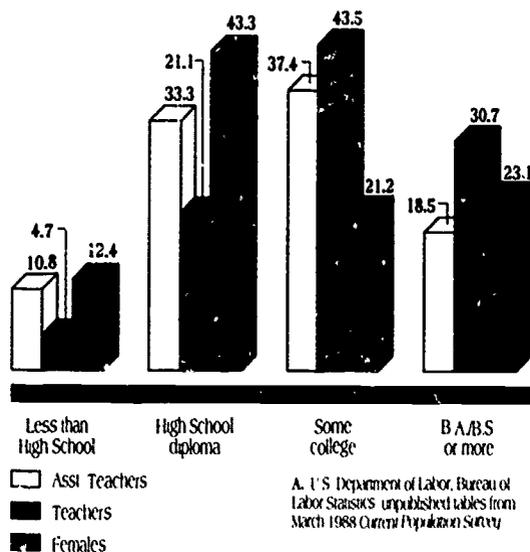
The proportion of child care teachers who were women and their age distribution changed little between 1977 and 1988.¹³ Ninety-seven percent of the teaching staff in our Study were female and 81% were 40 years old or younger (only 7.1% were under age 19). Still, the child care work force is remarkably diverse. Twice as many of the teaching staff were members of minorities in 1988 (32%) than in 1977 (15%). The sample was about evenly split between married (46.3%) and single (53.7%) staff. Sixty-five percent of the married staff members and 21% of the single staff had children.

PROFESSIONAL PREPARATION AND EXPERIENCE

Staff in our sample were well educated. While less than half of women in the civilian labor force have attended college, more than half of the assistant teach-

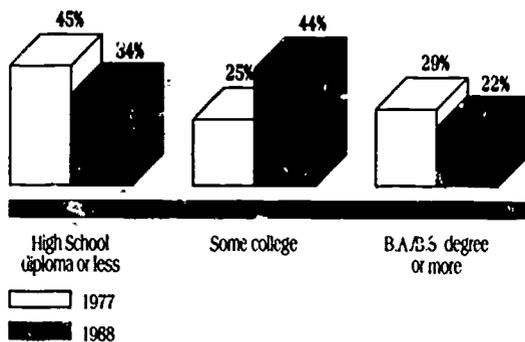
ers and almost three-quarters of the teachers in our Study had some college background.

EDUCATIONAL LEVELS OF CHILD CARE TEACHING STAFF AND OF THE FEMALE CIVILIAN LABOR FORCE, AGES 25 - 64



Although, in 1988, more of the teaching staff had completed some college, fewer had received a college or graduate degree than in 1977.

EDUCATIONAL LEVELS OF TEACHING STAFF: 1977 - 1988



Sixty-five percent of teachers and 57% of assistant teachers had some course work in early childhood education or child development within the formal educational system—at the high school, vocational school, college or

graduate school level. Half of the teaching staff with specialized training had received it at the college level or above.

Our child care teaching staff was substantially more experienced in 1988 than in the past. Twenty-nine percent of the teachers and 58% of the assistants had been teaching in child care three years or less when interviewed. But 19% had been working in child care for 10 years or more. In 1977, only 5% had been in the field this long.

PROFESSIONAL IDENTIFICATION

Sixty-six percent of our teaching staff viewed child care as a career rather than as a temporary job. This was particularly true of those with specialized training in early childhood education. Even among those who left their current position, one third stayed in the early childhood field.

Yet commitment to child care as a career did not translate into membership in professional organizations. Only 14% of the teaching staff belonged to a child-related professional group. Only 4% of the teaching staff were represented by a trade union. Teachers belonging to professional organizations had more formal education. Those belonging to either a professional organization or a union had more specialized training and experience, earned \$1.50 more per hour, and were less likely to leave their jobs.

FROM TEACHER BACKGROUND TO TEACHER BEHAVIOR

Teachers with different educational backgrounds behaved differently with children. In general, the amount of formal education obtained by a teacher was the strongest predictor of appropriate teacher behavior, with specialized training emerging as an additional predictor in infant classrooms. The amount of experience did not predict teacher behavior. In all age classrooms, the teaching staff's level of formal education best predicted *Sensitive*, less *Harsh*, and less *Detached* caregiving. Our findings differ from the National Day Care Study's¹⁴ in which specialized child-related training, regardless of formal education, best predicted staff behavior.

THE WORK ENVIRONMENT FOR ADULTS

Teachers' wages were the most important predictor in the adult work environment for both measures of quality associated with positive child development: **Appropriate Developmental Environment scores and ratios.** Teachers with higher salaries worked in centers with better environments for children. Wages and benefits were higher and working conditions better in centers that arranged for staff to have overlapping shifts. These findings suggest that when child care dollars are used to pay staff more, the quality of care for children is greatly enhanced.

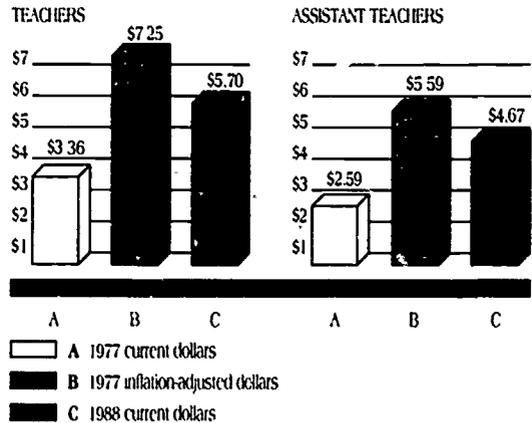
COMPENSATION

Yet child care teaching staff constitute a very poorly paid work force. **The average hourly wage in 1988 was \$5.35 which is an annual income of \$9,363 for full-time (35 hours/50 week year-round) employment.** The 1988 poverty threshold for a family of three (the average family size in our sample) was \$9,431 a year.¹⁵ Fifty-seven percent of our sample earned \$5 per hour or less. Most got no yearly cost-of-living or merit increases. A minimum wage of \$4.55 per hour was proposed by Congress and vetoed by the President in 1989. Forty percent of the staff in our sample would now be paid more if it had been implemented.



Despite gains in overall formal education and experience, child care teaching staff were paid even less in 1988 than in 1977. Wages, when adjusted for inflation, dropped dramatically. Teachers' earnings fell by 27 percent and assistants' by 20 percent.

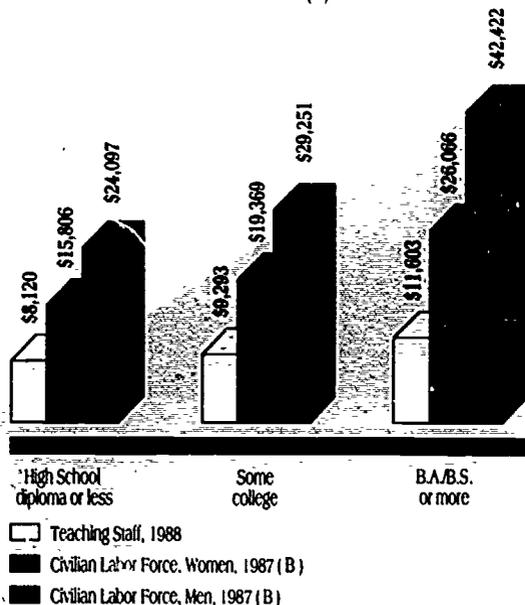
AVERAGE STAFF WAGES: 1977 - 1988



Child care teaching staff are typically paid to work year-round for 35 hours each week. The wages of child care teachers are essential to their family income. Forty-two percent of the teaching staff contributed at least half of their household income. One-quarter of the teachers contributed over two-thirds of their household earnings. To supplement their income, one-quarter of full-time teaching staff in 1988 worked a second job while only seven percent did so in 1977.

It is staggering how little child care staff earn compared with what other comparably educated women in the work force earn. When child care wages in our Study are compared with the wages of comparably educated men, the disparities are even more striking.

CHILD CARE TEACHING STAFF WAGES VERSUS CIVILIAN LABOR FORCE WAGES (A)



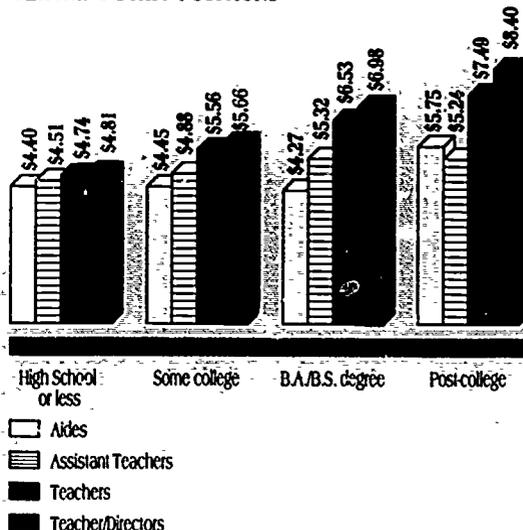
High School diploma or less
Some college
B.A./B.S. or more

□ Teaching Staff, 1988
■ Civilian Labor Force, Women, 1987 (B)
■ Civilian Labor Force, Men, 1987 (B)

A Full-time annual earnings based on 35 hours per week/50 weeks per year.
B 1988 data not available.
Source: Money Income of Households, Families, and Persons in the United States, 1987, Current Population Reports, Series P-6, No. 162, Table 36

Examining variation in child care wages by staff position reveals a very slight wage scale. Teachers and teacher/directors earned, on average, \$1.03 more per hour than did assistant teachers and aides. **Little incentive exists for teaching staff to obtain more education, training, or experience.** As seen in the following chart, the only notable increase in wages occurred for college graduates. Yet this amount would not cover the cost of that education.

WAGES BY EDUCATIONAL LEVEL FOR DIFFERENT TEACHING STAFF POSITIONS



Most child care teachers, even full-time staff, received minimal employment benefits. **Out of the entire sample, two out of five received health coverage and one out of five had a retirement plan.** Other than sick leave and paid holidays, the only benefit offered to a majority of the staff was reduced fees for child care. Teachers earning the lowest wages received the fewest benefits.

WORKING CONDITIONS

The two-thirds of full-time teaching staff were paid, on average, for 40 hours per week. But they averaged an additional four hours per week preparing curriculum, fundraising, or meeting with parents and staff for no pay. Seventy percent of the teaching staff worked without a written contract. Forty percent had no written job description. Only four percent were protected by a collective bargaining agreement.

JOB SATISFACTION

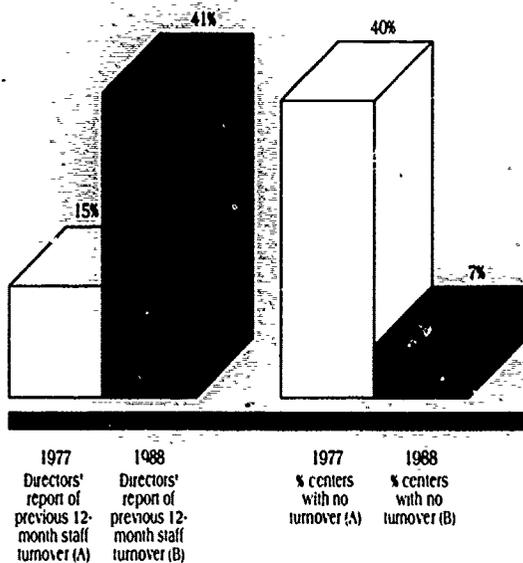
Although dissatisfied with their compensation, teachers expressed very high levels of satisfaction with the day-to-day demands of their work. Their greatest sources of gratification included participating in the growth and devel-

opment of children, autonomy on the job, and relations with colleagues.

STAFF TURNOVER

Staff turnover rates were disturbingly high. Across all participating centers, directors reported an average, annual turnover rate of 41 percent. The follow-up calls revealed a staff turnover rate of 27 percent over just six months. The number of directors reporting no staff turnover in their center plummeted between 1977 and 1988.

TEACHING STAFF TURNOVER: 1977 - 1988



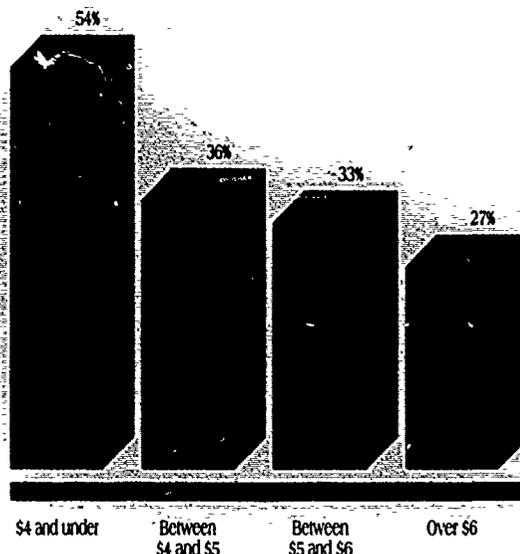
(A) Source: *Day Care Centers in the U.S. A National Profile 1976-1977*. Abt Associates, Cambridge, Mass., 1978 (National Day Care Study)
 (B) National Child Care Staffing Study, weighted data for comparison with the National Day Care Study

Compared with staff who remained in their centers, those who left were more likely to be new to the field and to have less specialized training. They worked in centers with lower quality preschool (but not infant) classrooms, as measured by the *Developmentally Appropriate Activity* scale. Staff who left also showed less *Appropriate Caregiving* in preschool classrooms and more *Detached* behavior towards all ages of children.

How the Adult Work Environment Affects Turnover

The most important predictor of staff turnover, among the adult work environment variables, was staff wages. In centers paying lower wages, directors reported a larger share of their teaching staff had left in the last 12 months. The follow-up telephone calls to the teaching staff confirmed these reports—actual turnover rates were higher in centers paying lower wages. Teaching staff earning \$4 per hour or less left their jobs at twice the rate of those who earned over \$6. Close to three-quarters of those who left found better-paying jobs in early childhood or other fields.

TURNOVER RATES FOR TEACHING STAFF WITH DIFFERING WAGES (SIX-MONTH TURNOVER)



How Turnover Affects Children

Turnover is detrimental to children. Children in centers with higher turnover rates spent less time engaged in social activities with peers and more time in *Aimless Wandering*. They also had lower *Peabody Picture Vocabulary Test* scores compared with children in centers with more stable teaching staff.

VARIATIONS IN CENTERS

CHARACTERISTICS OF CENTERS

Between 1977 and 1988, the average center enrollment increased from 49 to 84 children. Accordingly, the average number of care givers per center increased from 8 to 15. For-profit centers constituted 41% of centers in 1977 as compared with 47% of the centers participating in the National Child Care Staffing Study. For-profit centers' share of total enrollment also rose from 37% in 1977 to 51% in 1988. Government funding as a proportion of total revenues dropped from 29% in 1977 to 17% in 1988.

The racial composition of the children shifted in the last decade. While there were slightly more whites (63% v. 70%) and fewer blacks (28% v. 21%) in 1988, there were more non-whites from other racial groups (9% v. 13%). The age composition of the children also changed dramatically. In 1977, 14% of the enrolled children were infants and toddlers (two years old or younger). In 1988, this figure had grown to 30%. Thus, the proportion of preschoolers shifted, dropping from 52% to 46% and the proportion of kindergartners and school-age children dropped from 35% to 23%.

CHILD CARE ENVIRONMENTS

Centers in our sample provided a very wide range of child development environments. Quality varied widely for each of our child development environment measures: the *Developmentally Appropriate Activity* score derived from **Environment Rating Scales**, **Ratios**, and **Group Sizes**.

Developmentally Appropriate Activity

The average *Developmentally Appropriate Activity* scores were 3.17, 3.57, and 3.56 for infant, toddler, and preschool classrooms, respectively. A score of 3 indicates "minimally adequate" care on this measure; a score of 5 indicates "good" care, placing the average classroom in the sample at a barely adequate level of quality. At least two-thirds of the classrooms, for all ages of children, fell below a scale score of 4, and, at most, 12% of the classrooms met or exceeded the "good" score of 5.

Ratios

The Federal Interagency Day Care Requirements recommended ratios of 3 infants to 1 adult, 5 toddlers to 1 adult, and 10 preschoolers to 1 adult. On average, we observed ratios of 3.9 infants to 1 adult, 5.8 toddlers to 1 adult, and 8.4 preschoolers to 1 adult. While we observed 3:1 ratios in 36% of the infant classrooms, 30% of the classrooms had ratios of 5:1 or worse. For toddlers, 46% of the classrooms had ratios of 5:1 or better, but 22% had ratios of 8:1 or worse. Preschoolers fared better, 76% of their classrooms had ratios of 10:1 or better and only 7.4% had ratios of 15:1 or worse.

Group Size

The FIDCR recommends group sizes of no more than 10 infants to two-and-a-half-year-olds, 16 two-and-a-half to four year-olds and 20 four to six year-olds. On average, we observed group sizes of 7.1 for infants (under 1 year old), 9.6 for toddlers (1 and 2 year-olds) and 13.5 for preschoolers. Eighty-nine percent of the infant classrooms, 63% of the toddler classrooms, and 71% of the preschool classrooms had group sizes coinciding with the FIDCR recommendations.

Staffing Pattern

Most centers change their staffing arrangements during the course of the day. Between nine A.M. and five P.M., one teacher was alone with the children in 55% of infant and toddler classes and 57% of preschool classrooms. Working alone, an infant teacher cared for 3 to 8 children, a toddler teacher cared for 3 to 14 children and a preschool teacher cared for 6 to 22 children. In approximately 15% of the classrooms, staff had no overlap at the beginnings and ends of their shifts, and thus no opportunity to communicate information about the children.

TEACHER-CHILD INTERACTION

The average *Appropriate Caregiving* scores were 4.15, 4.10, and 4.39 for infant, toddler, and preschool classrooms, respectively. This places the average caregiving in classrooms for all ages of children below a level of quality

that indicates "good" care (a score of 5) on this scale. About 30% of all classrooms met or exceeded the "good" score of 5.

From Quality Environments to Teacher Behavior

Teachers in environments with high *Developmentally Appropriate Activity* ratings and lower *Ratios* (i.e., better) were more *Sensitive*, less *Harsh* and less *Detached* when interacting with the children. Contrary to previous studies, group size² did not predict teacher behavior.

COMPARISON WITH QUALITY GUIDELINES

Federal Interagency Day Care Requirements

How do centers that meet an acceptable threshold of quality differ from those which don't? To answer this question, every participating child care center was compared according to how they met the three major provisions of the 1980 FIDCR: ratios, group size, and teacher training. Centers that met all three provisions had staff with more formal education, higher levels of early childhood education training, and more experience. They also had more *Developmentally Appropriate Activity* for all ages of children.

Teachers in centers meeting the FIDCR provisions were more *Sensitive*, less *Harsh*, and engaged in more *Appropriate Caregiving with the children*, thus suggesting that standards may contribute to the creation of a warm and caring child care environment.

Centers meeting the FIDCR provisions paid better wages and provided better benefits, except for reduced fees for child care. Teaching staff in these centers reported higher levels of job satisfaction. Finally, directors reported higher staff turnover in centers that did not meet the FIDCR provisions. Centers meeting the FIDCR provisions charged higher parent fees.

COMPARISON OF WAGES, BENEFITS, AND TURNOVER IN CENTERS THAT MET THE FEDERAL INTERAGENCY DAY CARE REQUIREMENTS' (FIDCR) PROVISIONS FOR RATIOS, GROUP SIZE, AND TRAINING (A)

	Centers Meeting No FIDCR Provisions(B)	Centers Meeting All FIDCR Provisions
Average Hourly Wage	\$4.43	\$6.07
Annual Turnover (Directors' Report)	65%	32%
Percentage Receiving Health Benefits(C)	5%	51%
Annual Days of Sick Leave	3 days	6 days
Percentage Receiving Retirement Benefits	2%	24%
Percentage Receiving Cost of Living Adjustments	18%	45%
Percentage Receiving Reduced Fee for Child Care	77%	48%

A. Data are staff reports unless indicated.

B. 21% of centers met all, 68% met some, and 11% met no FIDCR provisions.

C. Includes partially and fully paid health benefits.

State Regulations

Sites vary dramatically in the proportion of centers that met or failed to meet the FIDCR provisions. This variation corresponds to the stringency of state child care standards. Boston has very rigorous child care regulations whereas Phoenix and Atlanta have among the most lax. In Boston, 100% of centers met all of the FIDCR provisions; every center met some of the provisions. In contrast, only 7% of the Phoenix centers met some of the provisions and 20% failed to meet any. Centers in Boston had higher *Appropriate Caregiving* and *Developmentally Appropriate Activity* scores than did centers in Phoenix or Atlanta. There was a strong relation between state regulations and observed ratios. Centers in Phoenix and Atlanta had worse ratios than centers in other sites for children of all ages.

Accreditation

Fourteen of the 227 centers in each of our sites had completed the center accreditation process sponsored by the National Association for the Education of Young

Children. These centers had staff with more formal education, higher levels of early childhood education training, and more experience than non-accredited centers. Accredited centers had more *Developmentally Appropriate Activity*, more classroom staff, and better infant and toddler *Ratios*. Teachers were more *Sensitive* and engaged in more *Appropriate Caregiving*.

Accredited centers paid better wages and, with the exception of reduced fee child care, provided more benefits. Accredited centers were also more likely to provide regular cost-of-living increases, paid preparation time and written job descriptions. Staff in accredited centers reported higher levels of satisfaction with supervisor and director relations but lower levels of satisfaction with their ability to resolve their own work and family conflicts. Although accredited centers did not charge parents higher fees than non-accredited centers, they did serve children from higher-income families.

Auspices

Differences characterized the four types of centers: independent, for-profit; chain, for-profit; non-profit; and church-sponsored. Educational levels and early childhood training were higher for teachers in non-profit centers than for teachers in either type of for-profit or church centers. Staff in non-profit centers had more experience than staff in for-profit centers.

Non-profit centers had more *Developmentally Appropriate Activity* than did independent, for-profit centers. Non-profit centers also had better *Ratios* than either type of for-profit center. They had more teaching staff in the classroom than any other auspice and were more likely to have two adults in a classroom at any given time than either type of for-profit center. Non-profits were more likely to arrange overlapping shifts for staff than were for-profit centers.

Teachers in non-profit centers were more likely to engage in *Appropriate Caregiving* than were teachers in the other types of centers. Teachers in independent, for-profit centers were more *Harsh* and less *Sensitive* than

teachers in other programs.

Non-profit and church centers paid higher wages than did either type of for-profit center. Non-profit centers provided better employment benefits, with the exception of reduced fees for child care, than did church and for-profit centers, and church centers provided better benefits than did independent, for-profit centers.

Both the six-month teacher turnover and the directors' report of the previous 12-month turnover were higher in for-profit centers than in non-profit centers.

WAGES, BENEFITS, AND TURNOVER IN CENTERS OF DIFFERENT AUSPICES (A)

	Chain, for-profit	Independent, for-profit	Non-profit, church-sponsored	Non-profit
Average Hourly Wage	\$4.10	\$4.76	\$5.04	\$6.40
Annual Turnover (Directors' Report)	74%	51%	36%	30%
Percentage Receiving Health Benefits (B)	21%	16%	24%	61%
Annual Days of Sick Leave	3	2.5	4.5	8
Percentage Receiving Retirement Benefits	8%	5%	13%	34%
Percentage Receiving Cost-of-living Adjustments	14%	19%	34%	54%
Percentage Receiving Merit Increases	45%	44%	41%	39%
Percentage Receiving Reduced Fee for Child Care	76%	65%	54%	50%

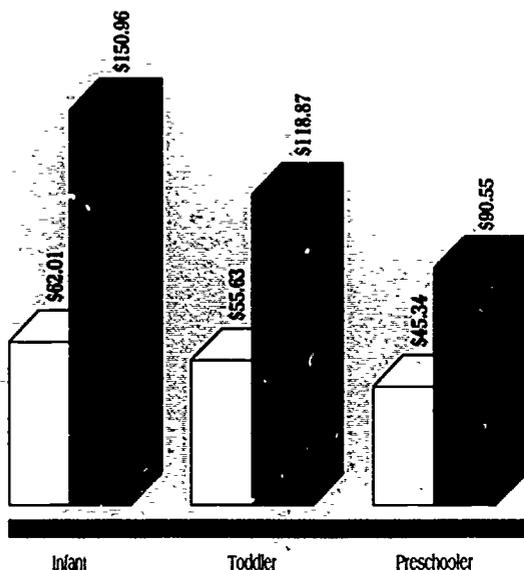
A These data are staff reports

B Includes partially and fully paid health benefits

These different types of centers have the same financial resources but receive funds in different proportions. Non-profit centers received a smaller proportion of their incomes from parent fees (59%), compared with church-run (83%) centers and both types of for-profit (87%) centers. The percentage of income from government funds accounted for this difference, with the non-profits receiving 33% of their budget from this source. Partly as a result of this subsidy, non-profit centers had significantly larger overall budgets than did the other centers, controlling for

total enrollment and proportion of full-time enrollment. Combined corporate and charitable funding accounted for just seven percent of any type of center's income. The fees that parents paid for child care differed dramatically by site and by age of child but not by auspice.

MINIMUM AND MAXIMUM WEEKLY FEES FOR FULL-TIME CHILDREN



NOTE: The minimum and maximum fees for each age group represent the lowest and highest average parent full-time fee found in a single participating site. The maximum fee is consistently charged in Boston. Atlanta and Phoenix charge the lowest fees.

Even when budgets were adjusted for differences in contributed space, total enrollment, and proportion of full-time enrollment, both types of non-profit centers spent a higher proportion of their budgets on teaching staff than did for-profits. Non-profit and church-run centers allocated 62% and 63% of their budgets to teaching staff salaries and benefits, respectively. For-profit centers, independents, and chains allocated 49% and 41%, respectively. Similar trends were found for percentages of budgets devoted to total personnel costs.

A final distinction among the differing auspices concerns the socioeconomic status of their clientele as reported by center directors. Children from low-income families

were most likely to be in non-profit centers. In contrast, children from middle-income families were disproportionately found in for-profit centers. Children from high-income families were found primarily in non-profit centers and, to a lesser extent, in independent, for-profit centers. Church-sponsored centers tended to serve children from low- and middle-income families.

What do these differences among centers tell us about quality? Auspice was the strongest predictor of quality. The second predictor of quality for infants and toddlers was whether or not a center met the FIDCR provisions. The second predictor of quality for preschoolers was NAEYC accreditation. The presence of government funds had little predictive value. **Non-profit centers, regardless of whether they received government funds, provided better quality care than for-profit centers that did or did not receive government funds.**

FAMILY INCOME AND CHARACTERISTICS OF CARE

Across numerous indicators of quality, we found that children from middle-income families were enrolled in centers of lower quality than were children from low- and high-income families. Children from middle-income families were found in centers with worse staff-child ratios, lower staff wages, and fewer staff with specialized training.

Accordingly, children from middle-income families were more likely to be in classrooms that were observed to offer less *Developmentally Appropriate Activity* and *Appropriate Caregiving*, with only one exception. Preschoolers from middle-income families were in classrooms with higher ratings of *Appropriate Caregiving* than were preschoolers from low-income (but not high-income) families. Children from high-income families experienced lower rates of staff turnover than did children from the two lower-income groups.

These patterns in quality of care correspond to income differences in parent fees. High-income families paid the highest fees, regardless of their child's age. But, non-subsidized, low-income families paid somewhat higher fees than did middle-income families.

RECOMMENDATIONS

Without major improvements in their salaries and working conditions, qualified teachers will continue to leave the child care field for jobs that offer a living wage. Action is required at many different levels of society to meet the challenge of improving the adult work environment in child care and thus the developmental environment for millions of children.

Parents are the starting point. They have the highest stake in improving the stability and quality of care for their children. They can intervene to improve services by demanding that federal and state governments, as well as industry, increase their commitment of resources. Early childhood education professional organizations, resource and referral agencies, direct service providers, training institutions, advocates and, of course, teachers have an important role to play in upgrading the quality of America's child care.

Five major recommendations emerged from the findings of the National Child Care Staffing Study. The first three recommendations, focusing on public and private resource allocation and regulation, are directed toward federal and state governments and employers. The last two recommendations are aimed at providers of direct and support services to child care, including businesses, and involve redefining practices and priorities within the early childhood education field. Suggestions about how to achieve these changes are listed below each recommendation.

1. Increase child care teacher salaries to recruit and retain a qualified child care work force.

- Establish salary levels that are competitive with other occupations requiring comparable education and training.
- Earmark funds for salary enhancement in all new and current federal and state allotments for child care.
- Increase the federal minimum wage and ensure

that it covers all child care teachers in order to raise the salary floor in child care centers.

- Encourage significant investment of new public and private resources for child care to help low- and middle-income families meet the cost of improved salaries in their child care programs.
 - Establish reimbursement rates for all publicly-funded child care that reflect the full cost of care based on improved salaries for teachers. Designate state level commissions to regularly assess child care reimbursement rates
 - Systematize federal, state, and local efforts to collect data on the child care work force.
- ### **2. Promote formal education and training opportunities for child care teachers to improve their ability to interact effectively with children and to create developmentally appropriate environments.**
- Develop career ladders in child care programs to reward education and training and encourage continuing education for all levels of teaching staff
 - Include resources for specialized early childhood education training in all new public and private funding for child care.
 - Expand current federal and state college loan deferment programs for elementary and secondary school teachers to include early childhood teachers seeking specialized training at the college level.
 - Establish a national training fund to provide education stipends to individuals currently employed in a child care setting and seeking two-year and graduate degrees in early childhood education.
- ### **3. Adopt state and federal standards for adult-child ratios, staff training, education, and compensation in order to raise the floor of quality in American child care centers.**

- Implement national regulations based on the FIDCR provisions and NAEYC Accreditation Project criteria.
 - Require states seeking federal child care dollars to adopt national guidelines
 - Encourage child care centers to participate in NAEYC's Center Accreditation Project.
- 4. Develop industry standards for the adult work environment to minimize the disparities in quality between types of child care programs.**
- Devote a minimum of 60% of center budgets to teaching personnel expenditures in order to maintain adequate salaries and to reduce turnover
 - Provide an employment benefits package for all teaching personnel which includes paid health coverage, a retirement plan, paid sick leave, vacations and holidays, and an annual cost-of-living adjustment.
 - Implement policies that include regularly scheduled paid time for curriculum preparation, staff meetings and in-service training.
 - Charge higher fees for services and create sliding fee schedules to assure equity in the percentage of family budgets dedicated to child care expenses.
 - Encourage child care teachers to join professional organizations and unions committed to improving their compensation and working conditions.
 - Create sliding fee scale membership rates to encourage lower-paid child care teachers to join professional organizations.
- 5. Promote public education about the importance of adequately trained and compensated teachers in child care programs to secure support for the full cost of care.**
- Include information about the significance of the adult work environment in all child care training programs
 - Encourage Resource and Referral Agencies to develop materials to assist parents in assessing the adult work environment, compensation levels and turnover rates when evaluating the quality of child care services.
 - Establish improving compensation as the top priority for the public education efforts of professional organizations in the field.
 - Encourage state and federal governmental agencies to educate parents about quality child care by developing a checklist for rating centers in regard to wages, turnover and staff-child ratios

CONCLUSION

Amidst the child care debate facing our nation, a consensus is emerging that high quality early childhood services are essential to the developmental and economic well-being of our children and families. The National Child Care Staffing Study raises serious concerns about the quality of services many American children receive. But our findings also clearly indicate how services can be improved if, as a society, we will devote the necessary resources to accomplishing this. America depends on child care teachers. Our future depends on valuing them.

Footnotes

¹Louis Harris and Associates, Inc. (April, 1989). *The Phillip Morris Companies, Inc. Family Survey II: Child Care*. New York: Phillip Morris Companies, Inc.

²In 1980, the Federal government adopted, and almost immediately rescinded, the FIDCR which contains three regulated ingredients of quality: the ratio of children per adult care giver, the group size in classrooms, and the child-related training of the teaching staff. We compared centers in our sample which coincided with FIDCR standards along these identified dimensions with those that did not. *Federal Register, Part V*, Volume 45, No. 55, Wednesday, March 19, 1980, Department of Health, Education and Welfare, Office of the Secretary, H.E.W. Day Care Regulations, pp. 17870-17885.

³The NAEYC is the largest early childhood education professional association. NAEYC operates a voluntary, nationwide accreditation program for all early childhood center-based programs. After a thorough review, centers that meet certain standards of care receive accredited status. *Accreditation Criteria & Procedures of the National Academy of Early Childhood Programs*; Sue Bredekamp, Editor; National Association for the Education of Young Children, 1984; pp. 1-2.

⁴Coelen, C., Glantz, R., & Calore, D. (1978). *Day Care Centers in the U.S.: A National Profile, 1976-1977*. Cambridge, Mass.: Abt Associates.

⁵First, the eligible pool of centers was identified from updated lists of licensed child care centers. Eligible centers, in addition to being licensed, provided full-time, non-residential care for at least 9 months per year, enrolled at least 15 children, and employed at least 6 teaching staff members. Second, the final sample of participating centers was selected from this eligible pool. This selection used a stratified, random sampling strategy. Specifically, the eligible pool of centers in each site was divided into six groups based on their location in (1) low-, middle-, or high-income Census tracts (using site-specific median incomes to establish

income cut-offs), and (2) urban or suburban neighborhoods. The final sample of centers was then randomly selected, using replacement sampling to handle refusals, to match the proportion of eligible centers in each of these six income and density groups. Thus, if 30% of the eligible centers in a site were located in low-income, urban neighborhoods, 30% of the final sample for that site consisted of centers in low-income, urban neighborhoods.

⁶Harms, T., & Clifford, R. (1980). **Early Childhood Environment Rating Scale**. N.Y.: Teachers College Press, Columbia University.

⁷Harms, T., Cryer, D., & Clifford, R. (1980). **Infant-Toddler Environment Rating Scale**. N.Y.: Teachers College Press, Columbia University.

⁸Arnett, J. (in press). Caregivers in day care centers. Does training matter? **Journal of Applied Developmental Psychology**.

⁹Waters, E. & Deane, K.E. (1985). Defining and assessing individual differences in attachment relationships: Q-methodology and the organization of behavior in infancy and early childhood. In I. Bretherton & E. Waters (Eds.) *Growing points of attachment theory and research. Monographs of the Society for Research in Childhood*, 50, (Serial No. 209). Pages 41-65.

¹⁰Howes, C. & Stewart, P. (1987). Child's play with adults, toys, and peers: An examination of family and child care influences. **Developmental Psychology**, 23, 423-430.

¹¹Feagans, L. & Farran, D. (1979). **Adaptive Language Inventory**. Unpublished, University of North Carolina at Chapel Hill.

¹²Dunn, L.M. (1984). **Peabody Picture Vocabulary Test (revised)**. Circle Pines, MN: American Guidance Service.

¹³To make comparisons between the Supply Study of the National Day Care Study and the National

Child Care Stalling Study, the proportion of centers that (1) were profit versus non-profit and (2) enrolled or did not enroll subsidized children (none versus less than 5 or 20% of enrollment versus more than 5 or 20% of enrollment) were made equivalent in the two samples using a weighting procedure.

¹⁴Roupp, R., Travers, J., & Glantz, F., & Coelen, C. (1979). **Children at the Center: Final Report of the National Day Care Study**. Cambridge, MA: Abt Associates.

¹⁵U.S. Department of Commerce, Bureau of the Census, unpublished data

For other reports from the
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about efforts to improve
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